Medicina Nautica:

AN

ESSAY

ON

THE DISEASES OF SEAMEN.

IN THREE VOLUMES.

VOL. I.

By THOMAS TROTTER, M. D.

MEMBER OF THE ROYAL MEDICAL SOCIETY,
AN HONORARY MEMBER OF THE ROYAL PHYSICAL
AND OTHER LITERARY SOCIETIES OF EDINBURGH;
LATE PHYSICIAN TO HIS MAJESTY'S FLEET
UNDER THE COMMAND OF ADMIRAL EARL HOWE, K. G.
AND TO THE SQUADRONS COMMANDED BY ADMIRAL LORD BRIDPORT, K.B,
ADMIRAL EARL ST. VINCENT, K. B.
AND THE HON. ADMIRAL CORNWALLIS.

REQUIES EA CERTA LABORUM.

ÆNEID.

SECOND EDITION.

LONDON:
PRINTED FOR LONGMAN, HURST, REES, AND ORME,
PATERNOSTER-ROW.

1804.

Printed by Strahan and Preston,
Printers-Street, London,

DEDICATION.

TO

RICHARD EARL HOWE,

Admiral:

THE FLAG OFFICERS,

CAPTAINS,

AND OTHER

OFFICERS OF THE FLEET.

MY LORDS AND GENTLEMEN,

DURING the unexampled Health of the Fleet for ſome time paſt, and while my attendance could be diſpenſed with, my leiſure hours have been employed in compiling this Work: I now humbly ſolicit your patronage.

It

It comprehends the hiſtory of Health during a period of conſiderable exertion. To You, in a particular manner, theſe labours look for protection; for You have witneſſed the whole.

It has been my wiſh, to make the duties of the Medical Profeſſion ſubſervient to the comfort and happineſs of Men, that have earned laurels for You, and given ſecurity to their Country. In doing this, I have been neither tenacious of form, or ſcrupulous about correcting old cuſtoms. As poſterity will only receive from us, what they may deem beneficial to themſelves; ſo we have a right to reject or embrace the opinions of thoſe who have gone before us, as may beſt ſuit our purpoſe. Medicine is connected with ſo many branches of ſcience, that as they improve, it is neceſſary to incorporate every

every diſcovery into our ſyſtem of Health. The LORDS COMMISSIONERS of ADMIRALTY, have bountifully attended to our applications: Your teſtimony of their utility will, therefore, give freſh ſupport to what we have further propoſed. When theſe improvements have received all the perfection of which they are capable, we apprehend that they will add reſources to the naval power of GREAT BRITAIN, that have never yet been duly called to her aſſiſtance. Theſe are motives which urge me to lay this Work before the Public, without delay: but it muſt appear under all the diſadvantages inſeparable from my preſent ſituation. Whatever may be its fate, here, or hereafter, it affords me an opportunity, which I earneſtly embrace, to return You my moſt ſincere thanks, for the numerous inſtances of

confidence, friendſhip, and regard, which have followed all my official and profeſſional engagements among You. The impreſſion which they have made, ſhall be treaſured in my heart; ſhall attend me to retirement; and ſhall be cheriſhed in remembrance, to the evening of life.

Et moriens carum recordabor Argos.

I have the honour to be,

My LORDS and GENTLEMEN,

Your faithful humble Servant,

T. TROTTER.

Spithead, Dec. 12*th*
1796.

CONTENTS.

	Page
Introduction — —	1
Discourse I. — — —	9
Discourse II. — — —	35
General Abstract of the State of Health —	56
Contagion — — —	171
Typhus — — — —	252
Ague — — — —	311
Yellow Fever — — —	323
Catarrh — — — —	358
Dysentery — — —	377
Small Pox — — —	386
Rheumatism — — —	391
Intoxication — — —	399
Scurvy — — — —	405
Means used to eradicate a Malignant Fever in the Brunswick, by Rear-Admiral Sir Roger Curtis, Bart. then Captain of the Brunswick — — —	431

Appendix.

Page

Appendix.—Containing the Treatment of recent Venereal Infection; addressed to Officers 430

Case of Amputation at the Shoulder, by Mr. William Burd, Surgeon of his Majesty's Ship, Niger — — — 476

ERRATUM.

Page 21, line 2, of the New Form, for *Welch linen*, read *Welch flannel*.

MEDICINA NAUTICA.

INTRODUCTION.

THE following pages contain the hiſtory of health, for three years, in a Fleet that has performed the moſt brilliant ſervices for Great Britain; which include the ſplendid victory of the 1ſt of June; the maſterly retreat of the "little ſquadron," under the Hon. Vice-admiral Cornwallis, from a fleet four times his force; and the handſome capture of three ſail of the line by Admiral Lord Bridport, in the very mouth of a French harbour.

The operations of a large Fleet in Channel ſervice offer a field for obſervation, of the firſt importance to the medical inquirer: that the preſent has afforded ſome novelty will ſcarcely be doubted. Ships newly commiſſioned, by receiving raw landmen, and drafts of ſeamen from crowded guard-ſhips, tenders, and hoſpitals, are the moſt liable to ſuffer from infection, and are generally employed, at firſt, on home-ſtations. Hence this

ſubject has engaged much of our attention: but a variety of other diſeaſes has preſented us with much matter for animadverſion; ſuch as the ſcurvy, catarrh, &c. I have endeavoured to imitate Dr. Blane, in calling upon the ſurgeons for occaſional remarks; and much valuable information has been received from that quarter, which I have thrown into the form of notes. It is to be regretted that theſe communications were not more extenſive; but various cauſes conſpired to render an uninterrupted correſpondence impracticable: the chief of theſe were, ſhips being diſpatched from the fleet to different ports; the fluctuation of others, and the deſultory operations of the whole, after the winter cruize, in February 1795.

My accounts of different diſeaſes, beſides the more immediate connection they have with naval ſervice, will be found uſeful to medical readers in general. They abound with facts that could be met with no where elſe; and, being compiled from a number of caſes, they bring into one view an endleſs variety of ſymptoms. Of theories I have ſaid little, or have only touched on ſome, where practical inductions rendered it unavoidable. We have infuſed into our ſyſtem of health ſuch improvements, as our acquaintance with chemiſtry, in its cultivated ſtate, warranted; this particularly applies to the means of ſubduing contagion. We have, therefore, entirely diſregarded the

agents

agents employed by our predeceſſors, for more than a century paſt, as well as ſome recent ones recommended by writers of the preſent day: and we contend that every ſubſtance whatever, that tends to diminiſh the reſpirable part of the atmoſphere, ſuch as the *gaſſes*, in vogue, is hurtful in the extreme. We have not, however, thought it of ſufficient moment to ſearch the firſt authorities for the employment of theſe fumes; they, doubtleſs, ſprung from falſe hypotheſis and inaccurate experiment, and have been purſued without ſcrutiny. To a hyperoxygenated atmoſphere, or one poſſeſſing its due proportion of oxygene, we look for ſecurity againſt infection; not as acting, by chemical combination, on contagious miaſma; but as ſupplying the human body with a quality that enables it to reſiſt the offending power. But we do not reſt this preference on an appeal to firſt principles only; we have witneſſed its ſucceſs on a larger ſcale of experience than has uſually fallen to the ſhare of one obſerver.

Our ſtock of facts on the ſubject of ſcurvy is great beyond all precedent: its prevention and cure have, from recent experiment, been brought to a certainty, ſo as to ſuperſede the utility of future inveſtigation.

In the treatment of typhus we alſo hope to have made improvements: from the advantage of

having attended an immenſe number of caſes in very diverſified ſituations, we ſuppoſe there will be found ſome practical diſtinctions in the ſymptoms, and remarks on the remedies, that are peculiar to ourſelves. On other diſeaſes it has been our wiſh to add whatever our own practice has ſelected as uſeful, and, throughout the whole, we have ſtrictly adhered to the duty of a faithful hiſtorian.

Situated as I am at preſent, it is incumbent on me to conſider every thing that is allied with my ſubject; and my labours will be often found directed to objects entirely overlooked by my predeceſſors. It was my fortune, as a medical man, to be introduced to the Navy early; ſince which I have paſſed through the gradations of mate, ſurgeon, and phyſician. To alleviate the miſeries of human nature, it is neceſſary to probe them to the bottom, and trace them to their ſource; but to relieve effectually the diſtreſſes of a particular claſs of men, as the Britiſh ſeamen, we muſt aſſociate with the character, and keep aloof from none of their frailties. If this has been done with any ſucceſs, the indulgent reader will forgive many errors, otherwiſe reprehenſible, in theſe pages. The whole were compiled from notes taken as opportunity offered, and with little premeditation. The ſtudies of a naval phyſician are ſomething like

 the

the ſoldiers prayers; they muſt be ſaid, "*when and where he can.*"

With reſpect to the arrangement: Two Diſcourſes are premiſed; in the Firſt I have made ſome obſervations on recent changes in the medical department, and what may be ſtill deemed objects of reformation. In the Second Diſcourſe, I have mentioned ſuch deſirable alterations as are connected with the preſervation of health, and the ſervice at large. A general abſtract is given of the health of the fleet, in one view; and then, a ſhort eſſay on the diſeaſes: the body of the work is ſo arranged, that future experience may be infuſed into the reſpective ſubject, or added in another volume, ſhould the war go on. This would particularly embrace the province of ſurgery. Some operations have been performed by our ſurgeons, with a degree of ſucceſs and elegance, that have been ſurpaſſed in no hoſpital whatever. I allude to two amputations at the ſhoulderjoint, by Mr. HOUSEAL, of the Melampus; and one, under the moſt hopeleſs circumſtances, in a French officer, on board the Niger, by Mr. BURD; and theſe are a few out of a number that deſerve to be known.

It may now be aſked, whether or not this work might appear with more advantage at ſome future period, as has been cuſtomary with ſubjects collected during war. But very powerful

reaſons induce me to publiſh it at this time. A practical ſubject can gain nothing by being kept; on the contrary, it may loſe much: facts ought to be recorded as they firſt ſtrike us, and not as they may do at a long interval. It is true, that more elegant language, and more correctneſs, might have been employed, by protracting the publication; but an unvarniſhed tale is preferable to both. The body of the work might alſo have been ſwelled, by contraſting my own opinions with thoſe of former writers; but that would not have added to the value of the original. We have, beſides, been engaged in a department of public ſervice, where a progreſſive plan of improvement has taken place, from our ſuggeſtions, under the auſpices of a Board of Admiralty, whoſe generoſity has *anſwered every application* made to them on the ſubject of health. If theſe applications have been ſeaſonably made, and judiciouſly adminiſtered when complied with, they will give additional weight to our authority and advice in recommending further alterations, and a moment ought not to be loſt in making them known. There is, moreover, a reſponſibility attached to the duty of phyſician to a large fleet, that I ſhould never wiſh to loſe ſight of. But the medical profeſſion, as ſubſervient to the happineſs of mankind, has claims upon my labours, that I haſten to abſolve. Such miſtakes as become viſible

here

here will be *beacons* for future adventurers; and if any thing is difcovered worthy of imitation, it ought to be followed.

It will be grateful to every lover of his country to read fo many fine traits of the naval character, which, as the Hiftorian of Health, have fallen to my lot to record. On the whole, it has been providential on my part, that my profeffional ftudies have been affociated with the fervices of a fleet, that have raifed the naval force of this country to the higheft pitch of glory. To the illuftrious Commander at its head, and other officers, the public has now frefh acknowledgments to make, for acts of kindnefs and condefcenfion to the health of the people, that have never been a fecondary confideration in our fhips.

It remains for me to make an apology, in this part, to Rear-admiral Sir ROGER CURTIS, Bart. for the liberty I have taken, in publifhing his Narrative of an infectious fever, on board the Brunfwick, as lately printed, for the ufe of his friends, more efpecially as I never hinted this, when confulting him on other fubjects. My readers will confider themfelves highly obliged, and agree with me, that it merits a better fate than the circulation of a day, and could no where appear with more propriety, than in the hiftory of a fleet, whofe fick owe its author fingular obligations.

On a future occaſion I purpoſe to add a more accurate detail of the deaths, and the people ſent to hoſpitals; but this is a buſineſs for which I have no leiſure at preſent. From what is told here, may be collected a leſſon uſeful to poſterity; as it ſhews with what a ſmall expence of human beings a naval war may be carried on, when compared with the fate of the army on the continent and elſewhere.

I muſt now in the name of the Fleet, offer my grateful thanks to CHARLES DODS, Eſq; ſurgeon at the Royal Hoſpital, Haſlar, for the kind and candid ſupport he has uniformly given to the meaſures which have been deviſed by me to meliorate the condition of our ſick, and the general ſtate of the hoſpitals.

Similar acknowledgements are alſo due to Capt. JAMES STEVENSON, and the officers of the Charon Hoſpital Ship, for their attention to the ſick of the ſquadron under the command of Rear-admiral HARVEY, during the ſevere weather in October and November 1795, at Quiberon.

MEDICINA NAUTICA.

DISCOURSE I.

MEDICINE, considered as an institution for relieving and alleviating the distresses of mankind, is so ingrafted on the customs of civilized nations, that every well-ordered government has admitted its utility, and extended bounties to its professors. As a handmaid to the art of war, it has been infused into our naval and military services; and to each a medical establishment has been deemed a most necessary appendage. The necessity of medical assistance has been particularly observed in modern wars. The colonies in Asia, Africa, and America, which belong to the powers of Europe, have, with their riches and commerce, brought a train of diseases peculiar to their climate, and fatal to the constitutions of northern nations, and which leave us to doubt whether or not we ought to regard these acquisitions as beneficial to society. The contests, which have arisen between one country and another, and the jealousy occasioned from the commercial consequence of

these

these poſſeſſions, have afforded a gloomy detail for the medical regiſter during the laſt century; but theſe are evils that have prevailed in all ages of the world: the ſcenes that are now acting in Europe do not offer a more conſolatory proſpect to philanthropy. It is, therefore, the *taſk* of the medical profeſſion, in the conflict, to ſtep between ſevere neceſſity and the human ſpecies; to wreſt the innocent victim from diſeaſe; to calculate unwholeſome ſeaſons; to detect and deſtroy contagions; to explore climates, ſituation, ſoil, water, and air; and laſtly, when the efforts of ſkill can neither preſerve or reſtore health, they may tend in a great meaſure to ſoften affliction, and "*ſmoothe the avenue of death!*"

What has come to us, concerning the military operations of the ancients, is ſo clouded with ſuperſtition and fable, that nothing is to be learned from it. Sea diſeaſes, in the ages of Greece and Rome, were altogether unknown, as their navigation was neceſſarily coaſt-ways, from the compaſs being unknown. It was, therefore, the extent of navigation and commerce, that gave birth to a new train of diſtempers, ſome of which had been little known, if at all, to the ancient world. We muſt, on that account, come nearer our own times to reap much information, and Dr. Lind may be juſtly ſtyled the father of nautical medicine. To his works have ſucceeded thoſe of

Robertſon

Robertſon and Blane; it may alſo be proper to mention with them, Dr. Clarke, who was a ſurgeon of an Indiaman, and wrote on the diſeaſes of ſeamen.

Although the cultivation of medical ſcience, with all its auxiliary branches, has been much encouraged of late, yet our medical inſtitutions in the navy are far from having acquired improvement adequate to the object in view. This is partly to be attributed to the ſmall emolument, which any naval appointment holds out to a phyſician or ſurgeon; and partly to the want of a board of ſcience, to appreciate abilities, and reward induſtry in a profeſſion, that fundamentally differs from every other form of ſervice, and the knowledge of which is almoſt confined to its own members. To remedy theſe evils, a liberal and diſcerning Board of Admiralty have changed the commiſſioners for ſick and wounded, into a

MEDICAL BOARD.*

We are not yet informed what new privileges will be granted to this Board; but we muſt expect them to be of a very liberal nature, if they are

* It may, perhaps, be acceptable to the medical reader of ſome future day, to know the names of the lords commiſſioners of admiralty, who have thus far contributed to the general

are to extend the full advantages of the profeſſion, to his Majeſty's naval ſervice. They will of courſe be inveſted with power to act, in all caſes of emergency, with promptitude and deciſion, as becomes the miniſters of health. The progreſs of diſeaſe will not wait the return of poſt, nor can forms of office ſtay the ſtroke of death. The appointment of ſurgeons has already been aſſigned to the phyſicians, and with this it is ſuppoſed that new regulations concerning the examinations will alſo take place.

On a ſubject, where my own opinions have contributed ſomething to effect improvements, and where, for a length of time I ſtood alone, I may

---

general welfare of the navy, and the medical department in particular.

JOHN EARL SPENCER, Firſt Lord.

LORD ARDEN,
C. SMALL PYBUS, Eſq.
LORD H. SEYMOUR, R. Adm.
SIR PH. STEPHENS, Bart.
J. GAMBIER, Eſq. R. A.
WM. YOUNG, Eſq. R. A.

EVAN NEPEAN, Eſq.
WM. MARSDEN, Eſq. } Secretaries.

MEDICAL BOARD.

DR. ROBERT BLAIR,
DR. GILBERT BLANE, } Phyſicians.
SIR WM. GIBBONS, Bart. Civil Commiſſioner.
JOS. STEWART, Eſq. Secretary.

may now be allowed to add ſome obſervations, as it will ſcarcely be diſputed, that my field for remarks has been extended, and my ſources of information equal, if not ſuperior, to any other perſon whatever.

In the little tract, which I publiſhed ſeven years ago, on the medical department of the navy, I took up the ſubject in a new manner, and confined the diſcuſſion of it to principles of ſcience entirely. A longer experience, more extenſive acquaintance, and the general approbation of officers, induced me to keep the buſineſs ſtill in view, in hopes that ſome favourable opportunity might offer for a more perfect inveſtigation. In a taſk of this kind, it cannot be expected that our actions will eſcape either comment or calumny: one man ſuſpects that his indolence is impeached, another dreads the expoſure of his ignorance, and a third may be afraid of ſomething worſe than either. My promotion to Phyſician of the Fleet, has neither relaxed my endeavours, or made me leſs zealous to ſee it accompliſhed, although I may be ſuppoſed not quite ſo much perſonally intereſted in the iſſue as formerly. On the contrary, a large majority of the ſurgeons looked upon this appointment as a fortunate circumſtance for their cauſe: if they ſhould be diſappointed in the end, they muſt accept the *will for the deed.*

It

It has been the good fortune of the medical profeſſion in Great Britain and Ireland, to enjoy emoluments far beyond what is to be acquired in any other country in Europe. In the metropolis, ſome of its members are now in the receipt of five thouſand pounds and upwards *per annum!* This liberal ſupport and reward of acknowledged worth and ſuperior abilities, may be juſtly attributed to wealth generally diffuſed among different claſſes of ſociety, and one of the happy conſequences of a free conſtitution and government. Many of the Phyſicians in London, and other great towns of England, began the practice of medicine in the army. Pringle, lately at the head of the Royal Society, was an army phyſician; but there are few of the navy liſt, that have been ſo fortunate in their profeſſional career. This can be imputed to nothing elſe, but different habits acquired by different modes of life; for the advantages of the early education are found to be much the ſame among navy and army ſurgeons. But the army ſurgeon has many advantages, in other reſpects, that can never fall to the lot of any perſon living in a ſhip: theſe are chiefly derived from being quartered in great towns, the intercourſe with poliſhed ſociety, and the gay manner of life peculiar to the army. Men attached to ſtudy and obſervation have it alſo more in their power to follow the bent of their inclination;

nation; they are not cut off from information to be obtained from books; and their ſituation affords them opportunities to cultivate acquaintance with literary characters, and the general progreſs of medicine. The very contrary to all this is the condition of a navy ſurgeon; and the ſea-life aſſuredly begets a diſpoſition of mind, that unfits him for the exerciſe of his profeſſion in private practice. He is, therefore, in the decline of his days, frequently left in a ſtate of precarious dependence: his naval ſervitude, in the prime of youth, had prevented him from making friends and forming connections, that would have been favourable to his future proſpects in medical rank and reputation; and his half pay is ſo ſmall, that it only helps him to draw a compariſon, painful to reflection, when he beholds the affluence of ſome old ſchool-fellow, who never needed to encounter the toils and dangers of the ocean, to earn his *otium cum dignitate.*

There are, moreover, a number of lucrative appointments in the medical department of the army, to which the ſurgeon has to look up, and to which there is nothing equivalent in the navy. The extent of the army ſtaff at this moment, abundantly ſhows a far ſuperior encouragement; and the regimental ſurgeon has juſt been allowed a half pay of *five ſhillings per diem.* When we draw the compariſon between the one ſervice and

the

the other, it is very natural to mark an obvious diſtinction. We may not be conſidered as their equals in medical knowledge and abilities; but in a faithful diſcharge of our duty, to the beſt of our power, we cannot yield up our claim to an equal indulgence from the bounty of the public.

When half pay was firſt granted to the navy ſurgeons, it probably included the whole liſt at the time, as the number of ſhips was ſmall. But as our navy increaſed, the encouragement to the medical gentlemen does not ſeem to have been proportioned, and progreſſive; for till lately one hundred and twenty-five, out of five hundred, received half pay. The victory of the 1ſt of June, that will be memorable on many accounts, was an occaſion where the abilities of the ſurgeons were generally noticed, and called for much exertion on their parts. It appeared alſo to give freſh ſupport, and a fit ſeaſon, for renewing their claims for a further extent of the bounty of government. It became my official duty to mention to the Admiral and Captain of the fleet, the meritorious conduct of theſe gentlemen; and their ſituation had frequently been the ſubject of previous converſation with both. I was made to underſtand, that the commander in chief would moſt cordially ſupport any application the ſurgeons might make to the lords commiſſioners of admiralty, as a teſtimony of his approbation of their recent ſervices.

This

This welcome intelligence being communicated to Mr. Peter Smith, Mr. Stephenſon, and Mr. Glegg, a general meeting of the ſurgeons took place, and a ſhort, but impreſſive petition was tranſmitted to the ſecretary of the admiralty, to be laid before their lordſhips.* From this time the lords commiſſioners were pleaſed to order the neceſſary information to be laid before them; but before definitive arrangements could be made out, very conſiderable changes took place at the admiralty.

When the fleet was called out in the winter, there were upwards of forty vacancies for mates throughout the ſhips, which afforded the admiral another opportunity to requeſt their lordſhips attention to the buſineſs: the board was juſt formed under Earl Spencer. Their lordſhips were, therefore, pleaſed to decree an increaſe of half pay, and other encouragements, as they now ſtand; and they are great indeed compared with the former eſtabliſhment.

The pay of the individual, and the intereſt of the public ſervice, in this department, are ſo inſeparably connected, that it becomes neceſſary to

* At this time their lordſhips were pleaſed to increaſe the pay of ſurgeons mates 1*l.* per month: if the firſt mate was in poſſeſſion of a ſet of inſtruments, he was decreed to receive 5*l.* per month.

combine them in this discussion: improvements in one, can only take place with an increase of the other. When the late additions were made, it was observed, that a number of surgeons came forward, who had declined employment at the beginning of the war. I consider it as much a part of my duty to record these circumstances, as any other transaction. But a total change in the mode of payment must be the first step towards a scientific system. It must be a fixed sum, whether by the day, or by the month, and the half pay modified by it. This was the object I had in view in my former work, and what improvements have been adopted lately, are but so many advances towards it. There will be found in these pages ample proofs, how much, on certain occasions, the defence of this country may depend on a vigilant and active medical practice; which in their proper place will plead a sufficient excuse for the warmth with which I must continue to recommend further alterations.

It requires no eloquence of mine, or that of any other person, to awaken the sensibility of an Admiralty Board, that has already looked so kindly to the sick-bed of the sailor: but for many reasons it is to be wished, that all improvements, which by the directions of their Lordships are to descend from the Medical Board, should be brought to trial before the conclusion of the war.

6

I lament

I lament that an hour should pass before the completion of a scheme that cannot fail to give fresh resources to our naval department.

The supply of medicines claims immediate correction from the Medical Board. It is at present interwoven with the pay, and the source of multifarious abuses. These, like some others, can only be prevented by changing the mode of payment, and allowing the medicines at the expence of government. The full pay of the surgeon has never been the cause of complaint, unless in very sickly ships; and in such situations it is liable to engross the whole of the emoluments. But it is a liberal half pay, that is to answer the magnitude of the object, utility to the service, and support to the individual; and to make it equal to that of the army surgeon, could only be doing away an invidious distinction.

I am still of opinion, that the supply of medicines to his Majesty's ships, can only be effectually done at government expence, and under the controul of the Medical Board. Some time ago, when consulted on this business, I sketched out a plan, down to the minutest forms of office. The outlines were, to erect Dispensaries at the dock-yards of Chatham, Portsmouth and Plymouth, to be superintended by a navy surgeon, with clerks, porters, &c. Branches of these institutions, for the supply of ships abroad, should be established

at Kinſale, Gibraltar, Madras, Calcutta, Antigua, Jamaica and Halifax. A ſum of money, not exceeding 20*l.* ſhould be allowed the ſurgeon, on his firſt appointment, to furniſh inſtruments, which he is to repair and recruit at his own expence afterwards: theſe are to be annually ſurveyed at the Diſpenſary, for which he will receive a certificate; and when unemployed, they are to be depoſited in one of the Diſpenſaries. Medicine cheſts for different rates will be appointed by the Board, and alterations made in their contents, to correſpond with the nature of ſervice and ſtation of the ſhip. Occaſional ſupplies ſhall be made, as in other branches of ſervice. He ſhall make oath, once a year, on paſſing accounts to receive pay, that theſe articles of medicine have been duly and faithfully adminiſtered on board his Majeſty's ſhip. From theſe Diſpenſaries all the ſurgeon's neceſſaries ſhould be iſſued under ſimilar forms. It appears to me, that an inſtitution of this kind, to anſwer all the purpoſes of ſervice, might be brought into actual practice in a few weeks.

After the return of the fleet to port, in June 1794, we accompliſhed a very deſirable change in the neceſſaries, by throwing out ſome uſeleſs articles, that quickly ſpoiled, and others that engroſſed a large part of the money, though of little uſe. It was of great conſequence to procure more tea, which of all articles in diet is moſt reliſhed

by

by our sick: the whole alterations were limited to the sum allowed for the old form. A seventy-four, for one month, receives,

NEW FORM.*

		yds.
Finer new linen	—	12
Welch linen (bandages)		8
		lb.
Tea	— —	8
Cocoa, or Coffee	—	12
Sago	— —	8
Rice	— —	16
Barley	— —	32
Fine soft sugar	—	64
Ginger	— —	$0\frac{1}{4}$
Saucepans, strong	—	4
Canisters	— —	2
Boxes	— —	1

OLD FORM.

		lb.
Lump Sugar	—	48
Tea	— —	1
Currants	— —	20
Rice	— —	18
Barley	— —	18
Sago	— —	10
Almonds	— —	$1\frac{1}{2}$
Tamarinds	—	3
Garlick	— —	4
		oz.
Shallots	— —	8
Mace	— —	2
Cinnamon	— —	4
Nutmegs	— —	2
		yds.
New linen	— —	12
Saucepans	— —	4
Boxes	— —	1
Canisters	— —	2

* These articles being now sufficient for the purposes of service, it only remains to allow an addition to the sum, that the quality of each might be improved.

When an increase of salary was ordered to the Medical Board, we are led to regret, that Govern-

ment

ment did not at once make it equal to the Army Board. The phyſicians, who are to ſuperintend the health of the Britiſh navy, ſhould be ſurpaſſed by none in ſplendour of eſtabliſhment; and it would have put it more in their power to enforce ſome regulations, that are eſſentially connected with its welfare, and to which all eyes are, at this moment, fixed. I would have their lordſhips to proceed with this work of benevolence, and not to confine the limits of it, by comparing what is done with what it was before, that the ſpirit of the undertaking may never be damped by any ill-timed parſimony. It can be deemed no breach of national œconomy, to reward the ſervices of eminent and learned characters, in ſuch a manner that the public may enjoy the full benefit of their abilities. It is not in Board hours alone, that theſe talents will be uſefully employed: their private, as well as official correſpondence, muſt pervade every corner of the department. Such is the nature of medical ſcience, that as it is conſtantly acquiring new acceſſions of knowledge, from new facts and obſervations, theſe phyſicians will ſerve as a *focus*, where every ſcattered ray is to be condenſed, and where every new idea will again diverge, for the information of the whole. Our preſent labours are a humble epitome of this manner of collecting facts, and an imitation of what Dr. Blane was the inſtitutor, in a former war.

When

When the younger members of the profeſſion are aware of a ſcientific Board to watch their labours, it will tend to ſtimulate genius and induſtry, and will occaſionally draw forth valuable talents, that might be left to ruſt in obſcurity, or remain neglected, to the loſs of themſelves and the country. By theſe means only will Phyſicians at the Board be able to confer that diſtinction on merit, which muſt always be expected from their hands; and which I conceive to be a ſacred part of the truſt confided to them, as the directors of medical ſcience in an extenſive public ſervice.

HOSPITALS.

A word at parting: Much of my profeſſional labours having been directed to the reformation and improvement of the Royal Hoſpitals, it remains for me to add ſomething here, as peace does not ſeem very diſtant; for I ſhould be ſorry to with-hold a ſingle idea that can aſſiſt the completion of a work, to which the intereſts of the navy are ſo nearly allied.

When I was honoured with the appointment of Phyſician to the Fleet, I deemed it my duty to ſubmit to ſome officers high in command, what I conceived to be deficiencies in theſe inſtitutions, and whom, I knew, would intereſt themſelves in

the business. The Commander in Chief, as the proper mode for official inquiry, ordered Admirals Caldwell and Gardner, with Captains Domet and Nichols, to survey Haslar Hospital, and report to him their remarks. This duty was conducted by these officers with great patience and attention, and some very material changes have taken place. In an undertaking of this kind, but little foresight might assure me that I was soon to meet opposition to my projects. Men, who were my seniors in years, and superiors in knowledge, were quickly ruffled at the idea of change, in a situation where all had been thought perfect, and where the smallest step towards reformation had never been judged expedient. These institutions were particularly deficient in naval officers to keep the seamen under discipline and command; in the pay of physicians and surgeons, with other officers; in the number of physicians and surgeons; in buildings to lodge the officers; in the internal œconomy of the hospital, such as administration of medicines, diet for the sick, washing of the cloathes, &c. My remarks on these subjects were afterwards printed, with cursory arguments, for the information of public boards and officers, without a view to publication. Here, as with the navy surgeons, I contend, that the want of improvement has been owing to the want of encouragement; and till it is made equal to the

duty

duty of the truſt, the ſervice muſt occaſionally ſuffer: it is becauſe I value the abilities of theſe gentlemen as much as I ought to do, that I wiſh to ſee them amply provided for. Thoſe who know me beſt, will teſtify how little any thing perſonal has influenced my criticiſm; and thoſe who wiſh beſt to the navy, muſt regret that any member of a public department ſhould be obliged to receive part of his ſupport from private practice.

Anxious as I always muſt be for the welfare of the navy, I cannot help feeling, when I look to the pay of phyſicians on the army ſtaff, and compare it with the naval hoſpitals. To theſe ſtations, the induſtrious ſurgeon of a ſhip, who has to paſs a youth of turmoil and care, ſhould be taught to look up, as an incentive to emulation, and premium of ſervice. Men who can fill theſe appointments with advantage to the navy, and reputation to themſelves, a diſcerning Medical Board will always be able to ſelect. In ſhort, this Board has the happineſs of thouſands in their hands; by directing the ſtreams of the ſcience to flow from themſelves to every individual, to give health to the ſick and comfort to the diſtreſſed. Their precepts will be revered, and their example imitated: what is no inferior conſideration in the medical character, they will alſo extend the kind offices of humanity to the

ſick

ſick bed. It is the lot of the ſailor and ſoldier to languiſh under affliction and diſeaſe far from the cheering ſupport and watchful attendance of friends and relations *; and hence a charge of another kind devolves on their phyſician, that nurſes and others may be tender and aſſiduous in their reſpective duties.

Would not a medical library be a valuable appendage to theſe hoſpitals?

Might not the ground round Haſlar be advantageouſly laid out in gardens and orchards for the uſe of the ſick? How grateful is a diſh of ſallad after a long cruize? How delicious an apple, a pear, or a plumb, after a long ſickneſs on board? Speak you, who, like me, have had three narrow eſcapes from death, and a long confinement, with a tardy convaleſcence, at ſea! To theſe I would add a pigeon houſe, and poultry farm?

Amidſt other deficiences, I think a ſuit of baths one of the greateſt. There are many diſeaſes peculiar to naval officers and ſeamen, where they would be of infinite ſervice; and it is ſurpriſing they ſhould have been ſo long neglected. The ſituation of both Haſlar and Plymouth Hoſpitals are convenient for their conſtruction: they

* Heu, terra ignota, canibus data præda Latinis,
Alitibuſque jaces! nec te tua funera mater
Produxi, preſſive oculos, aut vulnera lavi.

ÆNEID.

ought

ought to be made for different temperatures; and joined to a magnificent national charity, the baths of Haſlar would become famous as thoſe of Baiæ, in the days of ancient Rome.*

We may with theſe improvements hope to ſee an apparatus for the exhibition of *factitious airs:* for ſurely an inſtitution like Haſlar Hoſpital ought to be the firſt to introduce diſcoveries into practice, that promiſe and have already effected cures in diſeaſes, for which the *Materia Medica* had been ranſacked in vain.

"Jam nova progenies cælo demittitur alto."

The firſt part of my attendance at Haſlar Hoſpital was marked by a deſire to correct any forms, that might not be conſiſtent with my own ideas of medical practice; I therefore began with the following regulations, which would have been altered and improved, as a longer acquaintance

* Tubs were employed for this purpoſe, while I belonged to Haſlar, in the form of thoſe uſed in ſlop ſhips, for purifying new-raiſed men; but the ſeamen had ſuch a diſlike to them, that it was found impracticable to get a rheumatic patient to bathe, becauſe they reminded them of *ſcrubbing*, by way of puniſhment, on board. Inſtruments of this kind degrade a public charity; a ſailor under diſeaſe ought to be bathed like a gentleman.

with

with the duties of my ſtation might ſuggeſt. The impartial reader will obſerve that, in any changes which I have preſcribed in theſe inſtitutions, no reſtraint has ever been offered to others, that was not adhered to by myſelf. In an hoſpital like Haſlar, I think the practice of the medical profeſſion might be carried to a higher degree of perfection, than in any other in Europe; and the pure ſpirit of the ſcience made ſubſervient to the treatment of the objects it is intended to relieve, beyond what can be done any where elſe. If I am thought to be ſingular, or Utopian, in this opinion, I have no objection to ſtand alone.

DIRECTIONS,

For the Viſiting Apothecary, and Aſſiſtant Diſpenſers, in the wards of the North Wing of the Royal Hoſpital at Haſlar.

I.

They ſhall ſee that the general regulations of the hoſpital, as put upon the ward doors, are duly attended to by the patients, nurſes, &c.

II.

The Diſpenſers ſhall go through the different wards, allotted to their ſuperintendance, every morning: from March to September, at eight o'clock;

o'clock; and from September to March at nine o'clock, to ſee that the wards are all diſpoſed in clean order and in due time, viz.

1. The patients in the Recovery Wards to be out of bed.
2. The beds to be properly made up.
3. The wards to be cleanly ſwept afterwards.
4. All pots and offenſive matters to be carried out and purified.
5. The doors and windows to be opened for the purpoſes of ventilation.—This to be done, by the ſaſh of one window being put down, while that of the next is thrown up; and ſo with the others.
6. They are to enquire of each nurſe, who has had the watch, whether any thing particular has occurred in the night, and to act accordingly, or report it to the Phyſician.

III.

Every patient is to be viſited immediately on coming to his ward, and what may be deemed neceſſary, preſcribed.—The Gentlemen are deſired to be attentive, in examining the duty of the labourers employed in cleaning and waſhing the people; to return them if not ſufficiently cleaned, and the neglect to be reported to the Phyſician.

IV. Patients

IV.

Patients with contagious fevers, ſmall pox, and meaſles, are to be ſtrictly ſeparated from others, and no viſitors are to be admitted into theſe wards. Thoſe labouring under chronic complaints of the ſame nature, are to be put together, as nearly as circumſtances will admit of.

V.

Cleanlineſs being one of the greateſt requiſites of an hoſpital, in all their viſits this is to be particularly watched, and the nurſes are to be charged with it; viz.

1. The men are to be kept clean in their perſons, by frequent changes of body-linen, &c.
2. By wearing their hair ſhort.
3. By waſhing themſelves every morning.
4. The nurſes are to waſh thoſe who are unable to do it themſelves.
5. Their beards are to be regularly ſhaved.
6. The bed-linen is to be duly ſhifted, and the beds as often as occaſion may require.
7. All cloſe-ſtools and bed-pans, &c. to be emptied, and waſhed immediately after uſe.

8. In

8. In non-compliance with theſe rules, the nurſe or patient to be reported.

VI.

As perſonal ſlovenlineſs is diſagreeable in men, ſo it is diſguſting in women: when obſerved, it is to be reported to the Matron.—This rule extends to keeping clean and neat,

1. Their cabbins,
2. Floors and ſtairs,
3. Water-cloſets, &c.

VII.

The attendance of the ſick in bed is to be particularly watched; that they have their medicines duly; that they are regularly ſerved with diet and drink; and that no nurſe be permitted to treat them harſhly or unfeelingly.

VIII.

As it becomes the duty of every medical attendant to ſuperſede the uſe of medicine by diet, when it can be done, ſo the appetites and cravings of the patients, for any particular kind of food, are to be regarded; and as far as the regulations of the hoſpital admit, are to be complied with.—In caſes of debility, and want of the uſual deſire for animal food, wine will be grateful, either by itſelf, in the drink, or with ſago, rice, panado, &c.

IX. The

IX.

At the hour that the medicines are received into the wards from the Dispensary, the assistant dispensers shall attend in their respective wards, to be certain that each man has received his medicines, as prescribed on the ticket, that it may on no account be left to the nurses, as hitherto.—At this time they are also to be assured, that every patient is in his proper ward, and to permit none to leave their wards, afterwards, for the night.

X.

The garret wards being solely reserved for men about to be discharged, no patient is to be moved there that takes medicine; but in cases where this may be again necessary, the patient is to be moved into another ward, more under the inspection of the Physician.—Fever patients, with surgical complaints at the same time, are to be sent to Lobby 62, to be visited by both Physician and Surgeon.

XI.

The Physician will begin his morning visit at No. 81, and finish with the small pox wards, No. 103 and 104. The visiting apothecary and dispensers, are desired to begin and finish their rounds in the same manner.

XII. The

XII.

The Phyſician will preſcribe to all thoſe caſes which more particularly require his attendance; but all changes of importance in the ſtate of any patient, are to be duly reported to him.—His preſcriptions, for the ſake of diſtinction, will be written with *red ink*; and they are not to be altered without a material change of ſymptoms, or in the recovery of the ſick man.—The viſiting apothecary ſhall ſee theſe patients as often as the nature of their complaints may require, and attend to the exhibition of their medicines.

XIII.

The Diſpenſers are deſired, at *unſtated times* of the day, to walk through certain wards, in order the more readily to detect all deviations from the modes of regulation and diſcipline it is wiſhed to inculcate: many opportunities for diſobedience may occur, whether from diſorderly nurſes, or by men who have *feigned* complaints for the purpoſe of being invalided.—The aſſiſtant diſpenſers in the wards ſhall perform this duty in weekly rotation.

XIV.

As it appears abſolutely neceſſary, for the benefit of his Majeſty's ſervice, that a regular

ſyſtem of duty, among the medical attendants should be eſtabliſhed, whether for punctual viſits to the ſick, or to make themſelves ſufficiently acquainted with the characters and diſpoſitions of men who practiſe deception, the gentlemen are required to give the neceſſary orders to the nurſes and others; and to aſſure them that nothing can be forgiven, that infringes againſt theſe rules: the Phyſician therefore expects that they ſhall be ſtrictly adhered to in all departments.

T. TROTTER, Phyſician.

Royal Hoſpital,
Feb. 4th, 1793.

MEDICINA NAUTICA.

DISCOURSE II.

THE character of a British Seaman exhibits so many striking singularities, that blend themselves so much with all his habits, that a thorough acquaintance with them becomes necessary to both officer and physician, in their respective stations. These peculiarities are the offspring of a sea-life, from the little communication it affords with the common manners of society. The love of adventure and enterprize, that so soon discovers itself in an active boy, seems to prompt the first inclination for sea; a longing curiosity keeps it alive, and nothing but a voyage will at last satisfy the youthful Argonaut; to which the parent consents, in the hope that a life of danger and toil will soon sicken the unexperienced sailor, and make him wish to live at home. This, however, seldom happens, and the first cruize or voyage casts the die for a future sea life to the young adventurer. It is somewhat remarkable, that boys in inland towns should so

 often

often ſhow this early deſire of going to ſea. I have, however, ſeen it diſcover itſelf there in a very romantic manner, and terminate in an elopement purpoſely to embark: among boys of this deſcription, the hiſtory of a broken ſailor is accounted the fineſt piece of eloquence; and whenever he appears, the narration of his voyages, battles, and ſhipwrecks, are liſtened to with rapture. The voyages of Drake and Anſon round the world, are famous in this way, and eagerly read by ſchool boys; but Robinſon Cruſoe has made more proſelytes to theſe kinds of adventures, than all other mariners: his ſtory, from firſt to laſt, is ſo full of incident; in all his difficulties he ſhows ſo much courage, addreſs, and ingenuity, that the young reader fancies himſelf the diſcoverer of ſome great kingdom, and his imagination wanders for ever in queſt of an iſland. Even the Engliſh newſpapers, now ſo generally circulated, have a wonderful effect in ſpreading this enthuſiaſm for a ſea-life: the number of well-fought actions, between ſingle ſhips, during the preſent war, will cheriſh it, and ſhape the fortune of ſucceeding warriors; while the ſublime manœuvre of piercing the French line, by Earl Howe, will be equally appealed to, at ſome future day, by the hiſtorian and ſchool-boy.

In a country, like this, that owes her ſecurity to a naval force, we ſee a victory at ſea celebrated

above

above all others; it rouſes the *amor patriæ* to the higheſt pitch of enthuſiaſm, and reminds a free people of their independence; becauſe nature has decreed that this is our element. The names of our great admirals are therefore revered as ſo many tutelary deities of our iſland—Hawke, Rodney, and Howe—and the heroes of the Granicus and Rubicon ſhrink into inſignificance, when compared with thoſe of the 12th of April, and the 1ſt of June.—Hence, from peculiar cauſes, the naval ſpirit of Great Britain, deſcends, as it were, in hereditary ſucceſſion.

That courage which diſtinguiſhes our ſeamen, though in ſome degree, inherent in their natural conſtitutions, yet it is increaſed by their habits of life, and by aſſociating with men, who are familiarized to danger, and who, from national proweſs, conſider themſelves at ſea, as rulers by birth-right. By theſe means, in all actions, there is a general impulſe among the crew of an Engliſh man of war, either to grapple the enemy, or lay him cloſe aboard: French men ſhudder at this attempt; and whenever it has been boldly executed on our part, they run from their quarters, and are never to be rallied afterwards. Nor does this courage ever forſake them; we have ſeen them cheering their ſhipmates, and anſwering the ſhouts of the enemy, under the moſt dreadful wounds, till, from loſs of blood, they expired.

It is only men of ſuch deſcription, that could undergo the fatigues and perils of a ſea life; and there ſeems a neceſſity for being inured to it, from an early age The mind, by cuſtom and example, is thus trained to brave the fury of the elements, in their different forms, with a degree of contempt, at danger and death, that is to be met with no where elſe, and which has become proverbial. Excluded, by the employment which they have choſen, from all ſociety, but people of ſimilar diſpoſitions, the deficiencies of education are not felt, and information on general affairs is ſeldom courted. Their pride conſiſts in being reputed a thorough bred ſeaman; and they look upon all landmen, as beings of inferior order. This is marked, in a ſingular manner, by applying the language of ſeamanſhip to every tranſaction of life, and ſometimes with a pedantic oſtentation. Having little intercourſe with the world, they are eaſily defrauded, and dupes to the deceitful, wherever they go: their money is laviſhed with the moſt thoughtleſs profuſion; fine cloathes for his girl, a ſilver watch, and ſilver buckles for himſelf, are often the ſole return for years of labour and hardſhip. When his officer happens to refuſe him leave to go on ſhore, his purſe is, ſometimes, with the coldeſt indifference conſigned to the deep, that it may no longer remind him of pleaſures he cannot command. With minds uncultivated and uninformed, they are equally credulous and ſuper-

 ſtitious;

ſitious: the appearance of the ſky, the flight of a bird, the ſight of particular fiſhes, ſailing on a certain day of the week, with other incidents, fill their heads with omens and diſaſters. The true-bred ſeaman, is ſeldom a profligate character; his vices, if he has any, rarely partake of premeditated villany, or turpitude of conduct; but rather originate from want of reflection, and a narrow underſtanding. Hence he plays the rogue with an awkward grace, though the degree of cunning which he occaſionally practices towards his creditors beſpeaks art: but from them he has learned the way to over-reach; and it ought to be remembered, that they have a particular intereſt in emptying his pocket as quickly as poſſible; for his bargains with the world, are limited to his landlord and ſlop-ſeller. In his pleaſures he is coarſe, and in his perſon ſlovenly: he acquires no experience from paſt misfortunes, and is heedleſs of futurity. His converſation, commonly, turns upon his own profeſſion, and his animadverſions are almoſt confined to a ſhip, her various properties, ſuch as ſailing, rigging, &c. yet the ſailor has a wit of his own, and he tranſlates all occurrences into his own phraſes: *cunns* a horſe when he rides; *heaves the lead* from the top of a ſtage coach, and *wings* * his enemy, when he ſhoots away his ſtun-ſail halliards. Thus his narrations are full of hyperboles,

* Captain M'bride's Letter to the Admiralty, Nov. 1781.

 ſimilies

ſimilies and compariſons: and if he finds he can work upon the credulity of his hearers, he will frequently outdo De Foe or Gulliver himſelf:

——— ——— ——— even from his boyiſh days
Till the very moment that you bade him tell it.
Wherein he will ſpeak of moſt diſaſtrous chances,
Of moving accidents by flood and field;
Of hair-breadth 'ſcapes, i' th' imminent deadly breach:
Of being taken by the inſolent foe,
And ſold to ſlavery; of his redemption thence
Wherein of Antres vaſt, and deſarts wild,
Rough quarries, rocks, and hills whoſe heads touch Heaven;
And of the cannibals that each other eat,
The Anthropophagi, and men whoſe heads
Do grow beneath their ſhoulders.

SHAKESPEARE.

Some new traits are engrafted on the character, by coming on board a man of war, and to be traced to the cuſtom of impreſſing them. This is apt to beget a ſulkineſs of diſpoſition, which is gradually overcome, when he recollects that he only reſigns his own liberty for a ſeaſon, to become a champion for that of his country. It, however, often preſerves a determination to watch every opportunity for effecting his eſcape: it is alſo the ſource of numerous deceptions, by making him aſſume diſeaſes, to be an object for invaliding. Hence he employs cauſtics, to produce ulcers; inflates the urethra, to give the ſcrotum the appear-

ance

ance of hernia; and drinks a decoction of tobacco, to bring on emaciation, ſickneſs at ſtomach, and quick pulſe. Under trials of this nature, there is exerciſe for both patience and diſcernment on the part of the officer and ſurgeon; but there is rarely occaſion for puniſhment. A well-regulated ſhip, ſoon reconciles all diſaffection. This war has been ſingular for few deſertions; and general puniſhments have ſcarcely been known in the Channel Fleet. His real diſeaſes ſpring from cauſes peculiar to a ſea life: laborious duty, change of climate, and inclement ſeaſons, bring on premature age, and few of them live to be very old.

If ſuch are the follies and vices of the ſailor, his virtues are of the fineſt caſt. In the hour of battle, he has never left his officer to fight alone; and it remains a ſolitary fact in the hiſtory of war. If, in his amours, he is fickle, it is becauſe he has no ſettled home to fix domeſtic attachments: in his friendſhips he is warm, ſincere, and untinctured with ſelfiſh views *. The "*heavieſt of metals*," as Sterne

* When a ſhip comes to action, it uſually puts an end to all party quarrels among the officers and people; ſo ready are they to unite againſt the common foe of their country. It alſo tries the ſincerity of friendſhips.

On board the Berwick, where I was ſurgeon's-mate, in the action with the Dutch fleet on the Dogger Bank, Aug. 5th, 1781, a ſailor was ſeized with convulſions immediately on being

Sterne calls it, becomes light as a feather, in his hands, when he meets an old ſhipmate or ac-

ing informed that his meſſmate was killed. They had lived three years together: whenever the meſs ſat down to take victuals, this man's convulſions always recurred, and the ſeat that his friend uſed, always brought him to his mind, when he looked at it. It was a very affecting ſight to the officers.

In the ſame battle, a young midſhipman who was wounded on the forecaſtle, could not be found after the action, and was ſuppoſed to be thrown over-board. Another young gentleman, who lived with him in the gunner's-meſs, became inconſolable, for the loſs of his friend; never was grief ſo exquiſite.

> Ut ſtetit et fruſtra abſentem reſpexit amicum:
> Euryale infelix, qua te regione reliqui?
> Quave ſequar!———
> Tantum infelicem nimium delexit amicum.

It happened, however, that, ſtunned with a blow which he had received on the head, he creept into the bread-room, where he fell aſleep, and did not wake for ſome hours. On coming out, he was perceived by his friend—they flew to one another; while the ſpectators wept at the interview; it could only be exceeded by the Roman Matron, who died with joy, on being informed, that her ſon ſurvived the battle of Cannæ. Theſe youths were twelve or thirteen years old: one of them had the honour of being ſignal officer, in the Queen Charlotte, on the firſt of June: they are both captains of the navy at this moment, with the hopes of their friends and country, fully realized in their profeſſional accompliſhments.—What a nice teſt of friendſhip!

> Fortunati ambo! ſi quid mea carmina poſſunt.
>
> VIRGIL.

acquaint-

quaintance under diſtreſs: his charity makes no preliminary conditions to its object, but yields to the faithful impulſe of an honeſt heart. His bounty is not prefaced by a common, though affected harangue, of aſſuring his friend that he will divide with him his laſt guinea: he gives the *whole*; requires no ſecurity, and cheerfully returns to a laborious and hazardous employment, for his own ſupport. Was I ever to be reduced to the utmoſt poverty, I would ſhun the cold threſhold of faſhionable charity, to beg among ſeamen; where my afflictions would never be inſulted, by being aſked, through what follies or misfortunes I had been reduced to penury.

Having ſaid ſo much of the ſailor, it may be expected that I ſhould add ſomething on the officers; but I have aſſociated too long with the character to be deemed an impartial delineator. The country will learn their value, from recent and matchleſs ſervices: and ſome of the gentler virtues which adorn the naval profeſſion, in watching the health and comfort of their people, will receive abundant teſtimony from the following pages.

RAISING MEN FOR THE NAVY.

The experience collected on this ſubject, during the preſent war, entirely correſponds with the account

account of numerous evils, related on former occasions. They muſt be inevitable, till a new ſyſtem is adopted. A country, that boaſts ſo juſtly of her *civil rights*, ought long ago to have reſcued from an involuntary engagement, a deſcription of people, to whom ſhe owes her greatneſs in the *ſcale* of empire. I am afraid that men high in office, have a very limited idea of the afflictions occaſioned by impreſſing ſeamen. Inſtead of calling it, a neceſſary and politic meaſure, for the ſafety of the country, I pronounce it to be a moſt fatal and impolitic practice. It is the cauſe of more deſtruction to the health and lives of our ſeamen, than all other cauſes put together; and every nerve of invention ought to be ſtrained, to put a ſpeedy and effectual check to it.

We have at laſt found an alternative for preſſing: the *requiſition* of ſeamen and landmen for the navy, which was made in the ſpring of 1795, by act of parliament, brought into the Houſe of Commons by Mr. Pitt, has formed a precedent that ought to be imitated on every future emergency. I am only ſorry that this act was not made permanent, ſo as to enable miniſters to call upon the counties and towns, whenever a levy of men was found neceſſary. There is not an objection, of any force, to be offered againſt a repetition of this kind: and had the officers, who regulated the volunteers, been ſomewhat more attentive in examining

amining them, there remains no doubt, but it would have effected all that was wiſhed for the good of the public ſervice. At ſome places, very high bounties were given, even to forty guineas, which were the cauſe of much fraud and impoſition: men utterly unfit for duty, but with no apparent diſeaſe, entered for the ſake of this ſum, and after being a few months or weeks on board, diſcovered their complaints to get invalided. It was particularly hard to preſs an able ſeaman, after ſuch high bounties had been given to landmen; for the king's bounty and theſe bear no compariſon.

In the beginning of a war, if we ſuppoſe the peace eſtabliſhment to be twenty thouſand men; ſixty thouſand more may be raiſed by requiſition, in the like manner, and in the ſpace of four months; by which means, ſeventy ſail of the line, with a proportion of ſmaller veſſels, would be ready to ſtrike a blow before any enemy could be prepared to face us.

The evils of impreſſing are manifold: a great number of our beſt ſeamen immediately diſappear at the beginning of a war, and conceal themſelves. It requires ſome time to get ſhips and tenders ready; the people are crowded together; they ſleep on the decks; they are without cloaths to ſhift themſelves; perſons of all denominations are huddled together in a ſmall room, and the firſt twelve months of a war afford a mournful taſk for the

the medical regiſter, in the ſpreading of infection, and ſickly crews. Hence a new commiſſioned fleet of ſhips can never be deemed an effective force at the early commencement of hoſtilities.

In a country like this, where ſo large a proportion of the people are employed in manufactories of different kinds, it is the firſt effect of a war to throw many of them out of employment. The only reſource is the navy and army. We muſt ſuppoſe that men of this deſcription, at leaſt that are married and have children, leave a ſituation where they have had enjoyments, and have to look forward to one where theſe blandiſhments are to have no ſhare; conſequently, they muſt feel thoſe pangs of ſeparation at leaving a virtuous charge, which are natural to human beings: this affecting tale needs not the language of romance to find its way to feeling hearts; but muſt now and then be aggravated to the moſt poignant diſtreſs, by reſigning wives and children to beggary and want, and a thouſand ills of which I can form no idea. Hence that dejection of ſpirits that makes them the firſt ſubjects for the ſcurvy, and the earlieſt victims to contagious diſeaſes. Many a melancholy ſtory is thus related to the medical attendant of a ſailor or ſoldier, and it begets a ſympathy that intereſts us the more in their recovery: under this ſpecies of mental affliction we know that numbers periſh, without any apparent diſorder.

Now

Now if these people were all levied by the requisition bill, their bounties would be so considerable, that a moiety could be left for the support of their connections, which I know was very generally the case on the late occasion; and it tends to alleviate the pains of separation. The poor landman receives a bounty of twenty or thirty shillings, which buys his first jacket; he probably passes through two receiving ships, and three or four tenders, before he arrives at the ship where he is to be stationary. By this time fresh slops are wanted, and the first year of his servitude does not put a shilling in his pocket. Very different is it with a requisition man; he can be trusted to march by land, and go to a king's port at once, without incurring diseases from the passage in a tender. He also considers himself a volunteer, and feels nothing to depress his mind, or to prevent him from accommodating himself to the customs of a new situation. He is thus reconciled to the navy, thinks less of trying to desert; or, if he did, he runs a greater risk of being taken up, as he may be known or heard of on the spot where he entered.

It may be said that high bounties were a heavy tax upon individuals: but if we were to calculate the vast saving of human lives, and the money spent in raising men under other modes, it will be found the very quintessence of œconomy. But,

putting

putting that out of the queſtion, what a trifle ought it to be reputed, when it prevents an Engliſhmen from being impreſſed, and makes him a volunteer in the ſervice of the public. I muſt, therefore, congratulate the country on the efficacy of Mr. Pitt's bill, and hope to ſee it made permanent. My authority ought to give ſome weight to the repetition, for I have ſeen much of its good effects, and have often witneſſed the horrors of the old ſyſtem.

DRESS.

A general uniform for ſeamen has been mentioned in the valuable works of Lind and Blane, and ſupported by arguments ſo concluſive, that nothing can be offered againſt them. Amidſt ſo many improvements in the navy, we are ſurpriſed that ſuch a one as this has never been brought into univerſal practice. A uniform in all ſituations contributes ſo much to perſonal delicacy and cleanlineſs, that we are at a loſs to conceive how our officers have neglected it ſo long: it is the more to be wondered at, as the moſt punctilious attention is now paid to the cloathing of the people. The Hon. Captain George Berkeley, when he commanded the Magnificent, as a guard-ſhip at Portſmouth, had his men dreſſed in a particular way: they were eaſily diſtinguiſhed from others,

and

and became proverbial for neatneſs of appearance, and orderly behaviour when on ſhore. Nay, ſo little have theſe ideas refined old habits in the ſervice, that the navy ſlops are really made in a form that no ſailor, who has any taſte in dreſs, will put them on. But there are other arguments to be uſed in favour of a general uniform. It appears to me, that deſertion would be very much prevented by it: at leaſt, it would increaſe the difficulty of eſcape, as diſguiſe could not be ſo eaſily aſſumed. The cloathes might be manufactured of a particular kind of cloth; and an act of parliament paſſed, enforcing the ſame regulations and penalties as are uſual in the army. The uniform ſhould conſiſt of a blue jacket, with a ſleeve and cape of the ſame, and lined with thin white flannel: a waiſtcoat of white cloth, trimmed with blue tape: blue trowſers, or pantaloons, of the ſame cloth with the jacket, for winter; and linen or cotton trowſers, either ſtriped blue and white, or all white, for ſummer: check ſhirt, and black ſilk neckcloth. A button of metal, or horn leſs liable to tarniſh, with the letters R. N. upon it. The hat ſmall and round, water proof, with a narrow belt, on which ſhould be printed the name of the ſhip; which could be conveniently ſhifted when a man is turned over to another ſhip. An outſide jacket, of a thicker texture, and flannel waiſtcoats, might be occaſionally ſupplied, as a de-

fence from cold and rainy weather. Such a form of drefs could not fail to be acceptable to the feamen; and it would be highly pleafing in the eyes of officers and others. The crews of different fhips would be known by the name on the hat-band, which would make them emulous to appear clean and orderly: this again would increafe attachment to the fervice and its commanders, and with thefe all the virtues of good difcipline.*

DIET.

This is a department where great improvements have been made of late years. The falted beef and pork are excellent; and the bread, till the high price of corn rendered a mixture neceffary, was as good as could be defired. Equal attention has been paid to other branches of provifion. Our officers are not a little vigilant in taking care that all articles are in due prefervation, and of the proper quality.

Some alterations might, however, be ftill made, with advantage. The allowance of falt meat, is too much at fea: when a fhip leaves the harbour, it ought to be reduced one third, and the full

* As foap has not yet been fully introduced to fupply the people, the captains would do well to infert an article into their private orders, for the men to buy it at pay-day, and to be muftered with their cloathing at ftated times.

value

value of it ſupplied in ſomething elſe. I think ſome of the cheaper pickles would be very acceptable. The molaſſes by admiralty order being now made general, the oatmeal breakfaſt is rendered palatable, and muſt be highly reliſhed; it forms a valuable article in the vegetable part of the diet. In the Weſt Indies, cocoa is ſupplied for breakfaſt with ſugar, in lieu of ſome ſpecies of proviſion liable to ſpoil in that country. The late Captain James Ferguſſon, lieutenat-governor of Greenwich Hoſpital, was the benevolent inventor of it.

Our ſhips are now liberally ſupplied with freſh vegetables for the firſt fortnight after coming from ſea; by which means, along with freſh meat, they are quickly recruited for any emergency, and prepared to reſiſt the effects of ſalted beef or pork for a longer time. I think if we could give every ſhip, on going to ſea, a quantity of onions, to mix with their pea-ſoup, or even to ſeaſon the ſalt meat, it would be uſeful in preventing ſcurvy. It is much to be wiſhed that a few ſheep ſhould be carried out, for the uſe of the ſick: a little mutton broth is ſo nouriſhing under debility, and ſo deſirable in many caſes after a long cruize, that to grant it would be the *ne plus ultra* of our improvements. Our officers have kindly ſhared their ſtock with the ſick; but look at their pay, alas! they cannot afford it.

From experiments which I made at Weevil, in the ſummer of 1792, when ſurgeon of the Duke, a certain means was found to preſerve *water* pure and ſweet for any length of time; by the ſimple proceſs of firing the caſks, in putting the ſtaves together, till a *charry coat is formed over the whole ſurface.* They are to be found in a little work intitled, Medical and Chemical Eſſays; printed by Jordan, in Fleet-ſtreet, London. I am not, however, ſatisfied with the attention the Victualling Board has given to this method; and it has never yet been practiſed from ſufficient authority.—Other obſervations and propoſals for improving the diet, will occur in different parts of the work, among the diſeaſes.

CONCLUSION.

It has for ſome time been a cuſtom in the navy, for Captains to give out a code of regulations, for the obſervance of officers and men in their ſhips. Many of theſe are of great importance in the preſervation of health, and nearly connected with our ſubject. Officers, however, have different ideas of modes of diſcipline; and we ſee the condition of ſhips, and the conduct of the people, differ materially. It would appear invidious in me, to ſelect or point out ſuch as I might think moſt worthy of preference and imitation.

tation. But I cannot help being of opinion, that a ſyſtem of valuable regulations, for the internal government of his Majeſty's ſhips, might be compiled from them. I am acquainted with ſome, where, in caſes of fire in any part of the ſhip, the diſtribution of the people, and what ought to be done, are detailed with the moſt perfect experience of a practical art; and at the ſame time with the moſt correct knowledge of thoſe branches of philoſophy, which are required on a ſubject of that nature. Others I know to be equally exact in all that relates to cleanlineſs, to waſhing decks, to the treatment of the ſick, and the ſituation of a ſick-birth, which is moſt commodious under the forecaſtle, to take in the round-houſe, and to be perfectly free from the gally ſmoke. A Captain, ſingularly attentive to his ſick people, aſked me one day, if it was not improper to waſh white paint, though in a ſick birth, with vinegar: he always obſerved a dampneſs afterwards, which was occaſioned by the vinegar converting the ceruſe into a ſugar of lead. This was certainly good chemiſtry; and white paint in ſick births ſhould be always waſhed with ſoap and hot water.—In the London, Vice-Admiral Colpoys has ordered the books ſent to the ſhip by the ſocieties, to be kept in the ſick birth, for the amuſement and inſtruction of his people: others have checkers, &c. to keep the ſeamen employed: and I re-

 member,

member, Captain Charles Thompſon ordered the people of the Vengeance *tops*, by way of exerciſe, when we approached the cold weather, on our paſſage home.

During the preſent war, many obſervations have occurred to me, which point out ſome alterations to be neceſſary in the payment of ſmart-money to the ſeamen. When the cheſt of Chatham was firſt inſtituted, that was conſidered the chief naval port: but from the immenſe increaſe of our navy, ſince that time, and the buſineſs to be done at Portſmouth and Plymouth, it becomes exceedingly inconvenient for the men to attend there; and the intention of the charity is often fruſtrated. Now, there would be other good effects reaped by the ſervice, were this money paid at the other ports. It is given with the benevolent view of alleviating the diſtreſſes of men, who have been maimed on duty; and it would be of material conſequence for the officers of the ſhip to attend, that the character of the man might be better certified, than can be done in a ſmart-ticket; for ſurely there muſt be occaſion, now and then, for diſcrimination; as, when the wound was received on any hazardous undertaking. It would thus operate as an encouragement, and would be held up as a reward of merit and great exertions, whether

whether in an engagement, or other ſpecies of duty. I alſo think that an admiral and two captains, would be the fitteſt officers to award theſe favours of Government to the deſerving objects. Their ſtation muſt afford them the beſt opportunities to appreciate the value of the ſervice; and by carrying their ſurgeons with them, or the phyſicians of fleets and hoſpitals, and ſurgeons of hoſpitals, the qualities of the hurts would be better aſcertained. But a ſailor would receive the boon with double gratitude, when it came from the hands of officers high in rank; and it would convince them, that they had an intereſt in doing him juſtice, and in his future ſupport and happineſs.

I would have it preſerved as a ſacred *Creed* in our Navy, never to ſeparate the condition of the ſeaman from his officer: who can feel for men of this deſcription, like the Commander, to whom he he muſt look for protection, whether in health or diſeaſe? It is this that begets the reciprocal attachment among them, and hence the numerous inſtances of a paternal ſolicitude for their welfare, which are daily coming under my review.

MEDICINA NAUTICA.

GENERAL ABSTRACT

OF THE

STATE OF HEALTH IN THE FLEET,

FROM THE 1ſt OF JAN. 1794, TO DEC. 1796.

AND OF THE WEATHER DURING THAT PERIOD.

I THINK it neceſſary to begin my remarks from this time, as my attendance at Haſlar Hoſpital afforded me ſome opportunities of knowing the general ſtate of health in the Fleet.

It is not intended in the following pages to give a minute detail of the changes of weather, as have been uſual in ſome medical regiſters; but only to mention thoſe particular occurrences in each ſeaſon, which evidently tended to affect the health of the fleet. Journals of the weather, which are given at length, ſwell the work unneceſſarily; and I believe are not always read. It is, therefore, my intention to be very brief on this part of my ſubject.

The

The winter of 1793-4, was rather mild upon the whole; not remarkable for the quantity of either rain or ſnow that fell; and there were but few days of froſt.

The fleet had been cruizing late in the ſeaſon; and by chaſing a French ſquadron of ſeven ſail of the line, a conſiderable diſtance to the weſtward, were by an eaſterly wind, which laſted upwards of three weeks, prevented from getting into the Channel, before the 20th of December.

The Ruſſel and Invincible, at this time, or very ſoon after, landed a number of men ill of a contagious fever. So late as the 19th of March following, two very bad caſes of this fever were ſent to Haſlar Hoſpital, from the Ruſſel. The ſick from this ſhip complained much of waſhing decks ſo very often during cold weather; it was performed no leſs than thrice a week; and the poor fellows attributed their ſickneſs to this cauſe: certainly, with great reaſon, it ought to be conſidered as having materially aſſiſted the effects of infection.

In February, ſome caſes of ſmall pox were ſent on ſhore from the Alfred. The infection was traced to a child brought on board in its mother's arms. They, in general, did well.

I may here mention a contagious fever which appeared on board the *Raiſonable*, commanded by Lord Cranſtoun.* This ſhip had been long at

* This ſhip did not belong to the fleet.

ſea,

ſea, and had met with much bad weather. She came to Spithead in January, and landed upwards of a hundred, very ill of typhus and dyſentery. Mr. Newberry, the ſurgeon, ſuſpected the contagion to have been brought on board by draughts of men from the guard-ſhip, but did not trace it to any particular perſon. During their abſence from England, one hundred and ſeventy people were ſent on ſhore at one of the weſtern iſlands, under Mr. Newberry's care. Lord Cranſtoun humanely attended to every propoſal from a judicious ſurgeon, for making the ſick comfortable, and they were ſupplied with every thing neceſſary. Of this number, ten died.

A conſiderable number of caſes, in flux and fever, were received from the Gibraltar. This ſhip had ſailed from Plymouth in November, to join Lord Howe; but after a cruize of ſome weeks, during much ſtormy and rainy weather, not falling in with the fleet, ſhe was obliged to return to port. Of theſe a few died with ſymptoms of great malignity.

Theſe ſhips being all affected with fevers very much alike in their nature, in their progreſs and ſymptoms, probably received the contagion by men ſent to them from receiving ſhips and tenders, which during fine weather attracted little notice, but appeared under a more ſerious form, when the cold and wet weather ſet in. None of them had

been

been long in commiſſion; but from any inquiries which I made, nothing ſatisfactory could be learnt.

Feb. 23. This day ſix men, in typhus, were received at Haſlar Hoſpital, from the London. On examining the particulars of their ſituation, I was not a little ſurprized to find, that ſome of them had been bled two or three times; and a larger quantity of blood taken, than is uſual among ſeamen, even under inflammatory complaints. They were, as might be ſuppoſed, in a ſtate of extreme debility. I was not able to trace this fever to its true ſource, but had reaſon to believe that it much reſembled the condition of other ſhips, juſt mentioned. Theſe people, and others who followed them, to a man complained inceſſantly of the ſevere duty they had undergone in returning the ſhips ſtores to the dock-yard. They were not diſcharged on the eighth of April, when I left Haſlar; to ſuch a degree of weakneſs were they reduced.

It having appeared to me, from the treatment of the fever, as now narrated, that the officers of the London were not aware, that a diſeaſe of a contagious nature was extending itſelf among their crew; I therefore requeſted Dr. Johnſtone, the reſident commiſſioner of ſick and hurt, to make the inquiry. Dr. Johnſtone was told, that no diſeaſe of this deſcription was known on board the London. I have

have been thus far minute in my remarks; as the ſequel will ſhow, that there were juſt reaſons for my early apprehenſions.—In the mean time, the London was paid off, and her complement diſtributed to other ſhips.

March. The Valiant of ſeventy-four guns, Captain Pringle, having received four hundred men from the London, ſome of them are now come on ſhore, in typhus.

About this time, an infectious fever prevailed on board the Hebe frigate, Captain Alexander Hood. She ſent ſome caſes to Haſlar, with ſymptoms of uncommon malignity. This ſhip was always remarkably leaky in her upper works; and the moiſture between decks, in bad weather, did not fail to affect the people. Lieutenant Minto of the marines received this fever, from viſiting ſome of the privates in the wards at Haſlar. Mr. Leggat the ſurgeon, was timely aware of the infection; but it was not ſubdued without ſpreading. The frigate had been long in commiſſion, which is a circumſtance always favourable to our means of preventing fever; but the ſeaſon of the year was unfavourable *.

March

* "In March 1794, the real febrile infection was introduced into the ſhip by ſome men we received from a ſhip from the coaſt of Guinea. A number of our men died of it,

at

March 10. This day ten men in fever, came from the Valiant. Some have alſo come from the Cæſar and Leviathan, part of the London's crew.—Among theſe come from the Valiant, is a boy that had been ſome time on board. He attended the ſurgeon's mates in their meſs, and was frequently ſent on errands, by his maſters, to the ſick birth, where he received the infection.

March 16. In the courſe of the week fifty people have been ſent from the Valiant.

March 18. Fives caſes of typhus received from the Cæſar.

April 1. Caſes of fever continue to be ſent from the Valiant, Cæſar, and Leviathan.

About this time, the Africa, of ſixty-four guns, Captain Home, arrived from Plymouth, and ſent ſome bad caſes of fever to Haſlar *. I took the liberty, from being well known to Captain Home, of mentioning the circumſtance, and he had no ſuſpicion that a fever of this kind was on board: but it was eaſily traced to eleven men, who had been diſcharged from the Cambridge receiving-ſhip,

---

at the hoſpital. It was ſome time before we got rid of the infection, although we kept fires conſtantly between decks, and ſmoaked the ſhip frequently with tobacco, wet with vinegar, brimſtone, &c.

(Signed) John Leggat, Surgeon,"

Hebe, Jan. 1795."

---

* The Africa did not belong to the Channel Fleet.

ſhip, at Plymouth, before the Africa ſailed. Captain Home gave orders, inſtantly, for every man with the ſlighteſt ſymptoms of fever, to be ſeparated and ſent on ſhore. The people who were not ſufficiently ſlopped, received additional cloathing; and the ſtricteſt attention to cleaning both the perſons and cloathing of every man, was immediately put into execution: all the bedding was ſpread out to air, and fires put in every place, wherever moiſture or foul air could be generated.

One of the flag-officers then at Spithead, having heard my opinion of the Africa's ſituation, and putting no great confidence in it, was pleaſed to order two ſurgeons to report to him their ideas of the condition of that ſhip. Theſe gentlemen inſpected the ſhip, and alſo her people at the hoſpital; but were of opinion, that the fever was of little conſequence: they alſo told the admiral, that the treatment of thoſe at Haſlar, was very improper, and could not fail to kill more than it would cure. It is to be remarked, that the firſt caſes, which were by far the worſt, were now convaleſcent under my preſcriptions. I ſuſpect, that what they meant by an improper method of cure, was my allowing to a few, three pints of port wine, in the twenty-four hours. This opinion gave me no uneaſineſs; it plainly evinced, that theſe gentlemen were equally confined in their information and experience on the ſubject of typhus.

Captain

Captain Home, who had more confidence in my ſtatement of the caſe, did not mind any additional trouble on his part, when the health of his ſhip's-company was at ſtake. He perſevered in his means of clearing and preventing contagion; and in the ſpace of ſix weeks, after ſending near a hundred men to the hoſpital, had the ſatisfaction to ſee his labours crowned with ſucceſs. Mr. Cudlip the ſurgeon, from his active humanity in the duties of his ſtation, during this ſtate of the Africa, became a ſufferer, and obliged to quit his ſhip when ſhe ſailed, with the ſquadron under Rear Admiral Murray, for Halifax.

On the beginning of April, or towards the end of March, a few bad caſes of fever came from the Robuſt and Coloſſus; both of which had arrived lately from the Mediterranean, in good health. No particulars came to me, on the manner of infection, but it did not extend far. Captain Jenkins was then commanding officer of the Coloſſus, and paid ſingular attention to my directions: there was no ſurgeon preſent. Theſe people having come from a warm climate, complained, with juſtice, of the hulk they lived in; which was left in a very wet and dirty condition by the ſhip's company that had occupied it before.

It is worth while to remark, that during my attendance at Haſlar, and paying ſome attention to the progreſs of infection in the tainted ſhips,

I obſerved that it conſtantly varied, in clear and rainy weather. After a few days of wind and rain, the caſes of fever were always increaſed in proportion. The fact would ſeem to be accounted for in this manner: during hard gales or heavy rain, the people, when confined below, muſt breathe a more impure atmoſphere; which alſo may concentrate the contagious effluvia: and if employed and expoſed to the cold and wet weather on deck, theſe will act as debilitating powers, and favour the action of contagion on the body. This obſervation was not new to me, I had ſeen it before on more occaſions than one.

April 9. This day I received the appointment of Phyſician to his Majeſty's Fleet, under the command of Admiral Richard Earl Howe; dated at the Admiralty-Office, April 3, 1794.

The Fleet, at this time, conſiſted of thirty-two ſail of the line, eight frigates, a ſloop, a fireſhip, one cutter, two luggers, with the Charon Hoſpital ſhip, in which I was ordered to embark. On the ſixteenth, I had viſited the ſhips, and reported their ſtate, as annexed, to the Commander in Chief *.

* State of HEALTH on board his Majesty's Ships under the Command of *ADMIRAL EARL HOWE, at Spithead, April 16th 1794.

SHIPS.	*Number on the Sick List.*	*Objects for an Hospital.*	*Prevailing Diseases.*	*Confined to bed.*
Queen Charlotte	14			
Royal Sovereign	31	—	Slight Fever.	
Royal George	25	—	Ven^{l} Compl^{ts}.	
Barfleur	20	—	Ditto.	
Impregnable	30	4	—	3
Queen	18	—	—	3
Glory	40	1	—	2
Bellerophon	21	1	—	2
* Hector	19	—	Catarrhs.	1
Montague	50	—	Venereals.	
Tremendous	25	2 Surgical Cases.		2
Gibraltar	13			
Valiant	20	6	Typhus.	6
Ramillies	17			
Audacious	12	—	—	1
Brunswick	26	—	Venereals.	2
Cæsar	32	5	—	5
Alfred	at St. Helens.			
Defence	32			
* Ganges	40	—	Venereals.	2
Leviathan	45	—	Ditto.	1
Majestic	12	—	Catarrh.	5
* Bellona	11	2	—	1
Invincible	16			
* Arrogant	46	—	Measles and Catarrh.	14
Orion	22			
Russel	7			
Marlborough	5			
* Theseus	15			
* Alexander	33			
Thunderer	28	—	—	3
Culloden	at St. St. Helens.			
	725	21	—	53

FRIGATES.

FRIGATES	
Phæton	No Sick on Board.
Latona	
* Hebe	
Venus	
Niger	
* Pallas	
Southampton	
Pegasus	
Charon, H. S.	
Circe	
Aquilon	
Comet, F. S.	
* Orestes brig	
1 Cutter, and	
* 2 Luggers	

Those marked * left the Fleet before the glorious 1st of June.

T. TROTTER, M. D.
PHYSICIAN.

The weather at this time, was mild, as is uſual in the month of April. The Valiant was ſtill infeſted with the fever that was brought on board by the crew of the London; but the caſes were becoming milder; in ſome, it put on an intermittent form, which ſhowed, that it was now on the decline. In the Leviathan, it was now compleatly extinguiſhed. This ſhip received the marines of the London. In the Cæſar, ſo late as the fifteenth, I found five or ſix of the London's people, confined to bed with fever; they were ſent immediately to the hoſpital; and at this period, it might be ſaid to ſtop *.

The

* "There is a diminution of the fever this month, nor are the ſymptoms ſo malignant: it is ſtill, in a great meaſure, confined to the people we received from the London; there being but few exceptions to the contrary; I believe not more than three or four of our old ſhips company have been attacked with it; and one or two of the Raiſonable's. A draught of forty or fifty men, from that ſhip, were put on board of us the morning we left Spithead, to compleat our complement. *

Out of ten of our people, returned from Haſlar, cured of the fever, four have relapſed; three of whom were again ſent to the hoſpital, with every ſymptom greatly aggravated. Several have been cured on board, as we have not always had opportunities of ſending them out of the ſhip. I have generally treated them in the following manner: I gave an emetic of

* Mr. Seeds does not ſeem to have known, that a typhus fever had but lately prevailed in the Raiſonable.

The Arrogant, with a new-raiſed crew, had juſt come from the Nore. The decks and beams of this ſhip were remarkable for their moiſture; which ſeemed to exhale from the timber. The purſer, an intelligent man, had been ill from rheumatiſm, which he aſcribed entirely to this cauſe; and had for ſome time obſerved the damp vapour, on his bed-cloaths, every morning like a heavy dew. It had alſo affected the ſhip's company; and a kind of irregular intermittent was prevalent among

of ipecac. when they firſt complained; after which, they took diaphoretics, combined with pectorals; and they were occaſionally ordered a ſcruple or half a dram of one of the neutral ſalts, with a few grains of rhubarb, as throughout the diſeaſe they complained of being conſtipated.—I found they could not bear evacuations, except of the moſt gentle kind; even emetic tartar, in the ſmalleſt doſe as an emetic, ruffled them exceedingly. I continued the diaphoretics and pectorals, till the tightneſs acroſs the breaſt, pleuretic ſtitches, and difficulty of breathing, were in a great meaſure removed; at this time the pulſe became ſofter, and an expectoration was produced. Bliſters, I found ſerviceable in relieving the rheumatic pains and ſtitches. The cure was then compleated by tonics and opium. I have given in this ſtage of the complaint, brandy and water, as a ſubſtitute for wine: wine not being at preſent allowed to the ſick *.

Cammomile tea, joined with the bark, I am inclined to think, anſwers better than bark alone, in this fever."

Cæſar. Mr. SEED's *Report for April*, 1796.

* The Commander in Chief, about this time, had ordered the ſurgeons to demand wine from the purſers, when wanted.

T. T.

among the landmen on board. This uncommon dampneſs of the Arrogant's timbers, was probably very much owing to the ſpot where ſhe lay in ordinary, which was ſurrounded with ſwamps. But, whether it was owing to this cauſe, or the ſhip being compoſed of green wood, it was an unpardonable omiſſion, ſomewhere, to report her fit for commiſſion before ſhe had been fired, for a length of time ſufficient to deſtroy the moiſture. The meaſles alſo prevailed in the Arrogant, at this viſit; but were mild, and ſoon diſappeared.

When conſulted by the Admiral, on the propriety of taking the Valiant to ſea, I gave it as my opinion, that in the preſent declining ſtate of the contagion, ſhe was fit for ſervice. I added, that the fine weather, which we had a right to expect from the ſeaſon of the year, and the employment and activity which the duty of the ſhip would give the people, would all tend to accelerate the extinction of the remaining contagion. I knew, beſides, that much was to be truſted to the method in which Captain Pringle was accuſtomed to diſcipline his people, and the unwearied attention and ability of Mr. M'Callum, the ſurgeon. The Valiant, therefore, ſailed with us. Some relapſes of men that had been ſent from the hoſpital, happened at this time. It was imputed to the ſpare diet which they had lived upon in a ſtate of convaleſcence.

May

May 1. The Valiant has had no fresh attacks for three days; four are now confined to bed, and these but slight cases.—The whole of the fleet may now be said to be in perfect health.

2. The fleet got under weigh, with a strong breeze at N. E.

4. The convoy, with the men of war under Rear-Admiral Montague, were ordered to separate.

13. This day one man in small-pox, and another in measles, both in a state of eruption, were sent on board the Charon from the Gibraltar. These diseases did not extend to any other person.—Six seamen, and the gunner's child, were inoculated, in consequence, on board the hospital ship; all of whom had the disease in the mildest degree.

17. The fever list of the Valiant is at present ten; but so gentle are the complaints, that none are confined to bed. One man died since leaving port: he was a landman, and came on board only the evening before the fleet sailed *.

* "State of HEALTH, on board his Majeſty's Ship Valiant, from the 1ſt of May to the 1ſt of June, 1794.

DISEASES.	Since laſt Report,				Preſent Sick Liſt.
	Taken ill.	Sent to the Hoſpital	Recover-ed.	Dead.	
Fever - - -	47	—	41	2	4
Flux.					
Catarrhal Complaints	12	—	9	—	3
Rheumatiſm -	4	—	3	—	1
Scurvy.					
Venereal Complaints	18	—	13	—	5
Ulcers - - -	10	—	7	—	3
Bruiſes, &c. -	6	—	4	—	2
Total - - -	97	—	77	2	18

REMARKS.

The fever that has for ſome time paſt prevailed among our people, has of late been diminiſhed, and ſeems now nearly worn out. Thoſe caſes of it which have occurred latterly, have been ſlight, with a very general intermittent tendency. Ever ſince its firſt appearance, few other complaints, comparatively, have occurred; and theſe few have been of the catarrhal kind; in ſome degree combined with the fever; in general, however, eaſily cured, but equally infectious with the fever in its more diſtinct form.——We have had no appearance of ſcurvy, although ſome of our men had lately before we ſailed, come off a long cruize, during which they had been afflicted with it. This, I hope, is owing to the very judicious ſupply of lemon juice and ſugar.

June 1ſt, 1794.

(Signed) GEORGE M'CALLUM, Surgeon."

19. This

19. This day Earl Howe received intelligence that the French fleet was at ſea; when the ſignal was made for the ſhips to prepare for action.

Our courſe was therefore ſhaped for the enemy's fleet, which was cruizing, to protect their homeward-bound American convoy, a long way to the weſtward. During this purſuit, a number of veſſels belonging to our Liſbon and Newfoundland trade were retaken, with two courvettes and a cutter; all of whom were immediately ſet on fire, and the people taken out.

27. Two French priſoners, in fever, were ſent to the Charon from the Thunderer. One of them died next day.—The infection did not extend to any of the Thunderer's people: they came from a courvette, which was bearing diſpatches to the French admiral*.

28. The enemy's fleet were ſeen to windward.

JUNE 1. The detail of this glorious battle, ſo honourable to the Britiſh navy, will fall to the ſhare of ſome more able hiſtorian. We were left in poſſeſſion of ſeven ſail of the enemy's line, one of whom, the Vengeur, ſunk the ſame evening.

FRENCH SHIPS TAKEN.

			killed.		*wounded.*
Le Sans Pareil	80	—	260	—	120
Le Juſte	80	—	100	—	145
L' America	74	—	134	—	110
L' Achille	74	—	36	—	30
Le Northumberland	74	—	60	—	100
L' Impeteux	74	—	100	—	75
			690		580
Le Vengeur			320 ſunk in her.		

* Dr. Blair, in his letter of this date, mentions his opinion of

RETURN of the Killed and Wounded on board his Majeſty's Ships, in the Actions with the French Fleet, on the 29th and 30th of May, and of the 1ſt of June, 1794.

SHIPS.	KILLED.		WOUNDED.		TOTAL.
	Seamen.	Marines.	Seamen.	Marines.	
Cæſar - -	18	0	37	0	55
Bellerophon -	3	1	26	1	31
Leviathan - -	10	0	32	1	43
Sovereign - -	11	3	39	5	58
Marlborough -	24	5	76	14	119
Defence - -	14	4	29	10	57
Impregnable -	7	0	24	0	31
Tremendous -	2	1	6	2	11
Barfleur - -	8	1	22	3	34
Culloden - -	2	0	5	0	7
Invincible - -	9	5	21	10	45
Gibraltar - -	1	1	12	0	14
Queen Charlotte	13	1	24	5	43
Brunſwick - -	32	12	94	20	158
Valiant - -	1	1	5	4	11
Queen - -	30	6	57	10	103
Orion - -	5	0	20	4	29
Ramillies - -	2	0	7	0	9
Alfred - -	0	0	6	2	8
Ruſſel - -	7	1	24	2	34
Royal George	18	2	63	9	92
Montagu - -	4	0	13	0	17
Majeſtic - -	3	0	4	1	8
Glory - -	13	0	31	8	52
Thunderer -	0	0	0	0	0
Audacious - -	4	0	18	0	22
Phæton frigate	3	0	4	0	7
Total	224	34	699	109	1,098

Names

of theſe caſes; and his reaſons for a ſpeedy removal to the hoſpital, to ſecure their own people from the contagion.

Names of OFFICERS Killed and Wounded.

KILLED.

Ships.	*Officers.*	*Qualities.*
Royal Sovereign -	Mr. W. Ivey - -	Midſhipman.
Marlborough - -	Abm. Nelſon -	Do.
Defence - - -	Wm. Webſter	Maſter.
	John Fitzpatrick	Boatſwain.
Impregnable - -	David Caird -	Maſter.
Tremendous - -	Francis Roſs -	Firſt Lieut.
Queen Charlotte -	R. Rawlence -	Seventh do.
	John Neville -	Lieut. Queen's Reg.
Queen - - - -	W. Mitchell -	Maſter.
Royal George - -	G. Heigham -	Eight Lieut.
	John Hughes -	Midſhipman.
Montagu - -	James Montagu, Eſq	Captain.
Glory - - - -	Mr. Geo. Metcalfe	Maſter.
	David Grieg -	Midſhipman.
Brunſwick - - -	Alex. Saunders	Capt. 29th Regt.
	Thomas Dalton	Maſter's Mate.
	James Lucas -	Midſhipman.

WOUNDED, and unable to come to Quarters.

Bellerophon - -	T. Paſley, Eſq. - -	R. Adm. of the White.
	— Smith, Eſq. - -	Capt. Marines.
	Mr. Chapman - -	Boatſwain.
	Glen - - -	Midſhipman.
Leviathan - - -		
Royal Sovereign -	T. Greaves, Eſq. -	Adm. of the Blue.
	Mr. C. Money - -	Capt. Marines.
	S. Mitchel - -	Lieut. do.
Marlborough - -	Hon. G. Berkeley -	Captain.
	Mr. A. Ruddock -	Second Lieut.
	M. Seymour -	Fifth Lieut.
	Fitzgerald - -	Midſhipman.

WOUNDED,

WOUNDED, and unable to come to Quarters, *continued.*

Ships.	*Officers.*	*Qualities.*
Marlborough *continued*	Mr. Shoreland - -	Do.
	Linthorne - -	Do.
	Hon. M. Clarges * -	Do.
	Mr. M. Pardoe - -	Maſter's Mate.
Defence - - -	Mr. J. Elliot - -	Do.
	Boycolt - -	Enſign Queen's Reg.
Impregnable - -	W. Buller * - -	Lieutenant.
	Patterlo - -	Boatſwain.
Barfleur - - - -	G. Bowyer, Eſq.	R. Adm. of the White.
	Mr. W. Prowſe - -	Sixth Lieut.
	Fogo - - -	Midſhipman.
	Clemons - -	Do.
Queen Charlotte † -	J. Holland - -	Do.
Queen - - - -	J. Hutt, Eſq. * - -	Captain.
	Mr. Dawes * - -	Second Lieut.
	Lawrie - -	Sixth do.
	G. Aimes - -	Acting do.
	Kinneer - -	Midſhipman.
Ruſſel - - - -	Stewart - -	Do.
	Kelly - - -	Do.
	Douglas - -	Boatſwain.
Royal George - -	J. Ireland * - -	Second Lieut.
	J. Balmborough	Maſter.
	Boys - - -	Midſhipman.
	Pearce - - -	Do.
Montagu - - -	Hon. Mr. Bennet -	Do.
	Mr. J. Moore - -	Do.
Brunſwick - - -	J. Harvey, Eſq. * -	Captain.
	Mr. R. Bevan - -	Lieut.
	Hurdis - -	Midſhipman.
	Harc. Vernon -	Enſign 29th Reg.
Culloden - - -	Triſt. Whitter -	Third Lieut.
Invincible - - -	W. Whithurſt -	Midſhipman.

Thoſe marked * died of their wounds afterwards.

† Captain Sir A. S. Douglas was wounded on the forehead, but returned to the deck after being dreſſed by the ſurgeon: a ſmall exfoliation of the frontal bone was the conſequence.

SURGEONS

SURGEONS of the Fleet on the 1ſt of June.

Queen Charlotte - - - - -	Mr. Wm. Murray.
Royal Sovereign - - - - -	Dr. Alexander Young.
Royal George - - - - - -	Mr. Richard Shepherd.
Barfleur - - - - - - -	John Heath.
Imprĕgnable - - - - - -	Wm. Wallis.
Queen - - - - - - - -	Alexander Browne.
Bellerophon - - - - - -	Thomas Fargher.
Tremendous - - - - - -	Alexander Dods.
Gibraltar - - - - - - -	Dr. George Smyth.
Valiant - - - - - - -	Mr. George M'Callum.
Ramillies - - - - - - -	John Plumpton.
Brunſwick - - - - - - -	Robert Forreſt.
Audacious - - - - - -	Robert Mellville.
Alfred - - - - - - - -	John Birtwhiſtle.
Defence - - - - - - -	Dr. James Malcolm.
Leviathan - - - - - - -	Mr. Charles Boveard.
Cæſar - - - - - - - -	Thomas Seeds.
Invincible - - - - - - -	Thomas Kenning.
Orion - - - - - - - -	William Pattiſon.
Ruſſel - - - - - - - -	Joſeph Stephenſon.
Montagu - - - - - - -	Samuel M'Clure.
Majeſtic - - - - - - -	Leonard Gilleſpie.
Marlborough - - - - - -	Thomas Romney.
Glory - - - - - - - -	Peter Smith.
Culloden - - - - - - -	Robert Ramſay.
Thunderer - - - - - -	Dr. Primroſe Blair.
Phæton - - - - - - -	Mr. Andrew Baird.
Latona - - - - - - - -	James Turkington.
Niger - - - - - - - -	Robert Kirkwood.
Southampton - - - - - -	George Michie.
Venus - - - - - - - -	John Buchan.
Aquilon - - - - - - -	Robert Harris.
Pegaſus - - - - - - -	William Fuller.
Charon, H. S. - - - - -	William J. Warner.
Comet, F. S. - - - - -	Robert Caruthers.
Incendiary, F. S. - - - -	
King's Fiſher, S. - - - -	
Rattler and Ranger cutters -	

June

June 8th. The Admiral having been informed that the French prizes were ſickly, ordered me to viſit them as ſoon as the ſituation of the Fleet would permit.

The number of killed and wounded in theſe ſhips was very great. The account, as given above, was what I obtained from the French ſurgeons, and reported it to the commander in chief. They were alſo ſickly; and, from being dirty to an extreme degree, a contagious fever had carried off many. The Sans Pareil had particularly ſuffered. This ſhip ſailed from Breſt, in a ſquadron, ſix weeks ago, with a complement of a thouſand men on board: many periſhed in the early part of the cruize, and a hundred ill of the fever were ſent into a courvette, whoſe guns were taken out, for the better accommodation of the ſick to be carried to port. It was told me, that the lower deck ports had never been opened from leaving the harbour till the day of action. The deaths in conſequence were very great; but we could not come at the exact number. Lieutenant Jacob, of the Majeſtic, had the command at this time, whom I cautioned about the nature of the fever, that his people might be kept as much as poſſible from the infected. This worthy man fell a victim to his humanity, with two midſhipmen.* They

* What a pity, that men endued with ſuch noble feelings did not live to ſhare that reward, by promotion, which this nice diſcharge of an officer's duty would have ſo juſtly conferred upon them!

ſuper-

ſuperintended ſome of the French priſoners in cleaning the lower deck, where the ſick and wounded lay; and there they received the fever, of which they died at Haſlar Hoſpital. Captain Trowbridge, who had been taken by this ſquadron, in the Caſtor, with part of his company, were on board the Sans Pareil. I examined ſome of the Caſtor's men, who were infected: Captain Trowbridge was adminiſtring to them himſelf, with great concern for their fate, and attended me to their hammocks.

The Northumberland was the next in point of ſickneſs; but the others were more or leſs infected with the typhus fever.* The whole were well ſupplied with medicines, ſurgeons, and aſſiſtants. The neceſſaries carried to ſea for the uſe of the ſick, conſiſted of many articles of comfort unknown in our navy: they had even live ſtock † on board for this purpoſe; which, when beſtowed on our ſick, muſt come from the tables of their officers.

June 9th. Nothing remarkable in the ſtate of the weather happened during this memorable cruize.

A priſoner in the ſmall-pox was this day ſent to the hoſpital ſhip from the Valiant, as ſoon as diſcovered. No infection followed in the Valiant.

13th. This day we arrived at Spithead with our prizes; part of the Fleet, under Admirals Greaves

* The Vengeur, which ſunk ſoon after the action, was alſo infeſted with a contagious fever.

† Sheep, goats, and poultry.

and Caldwell, having gone into Plymouth. The wounded men were landed immediately.

It deſerves to be recorded to the immortal honour of the officers in this Fleet, that the ſtock of their meſſes, conſiſting of ſheep and poultry, with all the delicacies which their tables afforded, was cheerfully reſigned for the ſupport and comfort of the wounded. But their goodneſs did not ſtop here; they learned that the diet of the hoſpital was deficient in ſome articles which a wounded ſailor could wiſh for; and ſums of money were ſent to procure them. My heart warms with indeſcribable emotions, while I relate a fact that deſerves to be recorded with the pen of an angel! *

Towards the end of June the weather became extremely hot, and the thermometer roſe to 80 of Farenheit in the ſhade.

A few days after the arrival of the Fleet at Spithead, Mr. Mackie, Surgeon of the Southampton, informed me that a fever of a contagious nature

---

* While the officers were extending their bounty to the wounded ſeamen, reciprocal feelings, like an electrical ſhock, pervaded every corner of the country. A ſubſcription was begun at Lloyd's coffee-houſe, by ſome public ſpirited Merchants, which was quickly imitated by all the great towns in England and Scotland, and ſoon filled, to the amount of *between twenty and thirty thouſand pounds!* The Theatre Royal, Drury-Lane, where the company performed *gratis*, is ſaid to have contributed 1,800l.

The wounded officers and ſeamen, marines and ſoldiers, received large donations: and a vaſt ſum was *funded* for the ſupport of widows and orphans, under the benevolent direction of Mr. Devaynes and others.——Such are the bleſſed effects of a naval triumph!

nature ſeemed to ſpread among his people; and he ſuſpected that it was communicated by their intercourſe with the French priſoners. This gentleman being perfectly aware of the danger, had conducted himſelf with ſingular addreſs and ability: the infected were carefully ſeparated from others as ſoon as the ſlighteſt ſymptoms of fever appeared, and on the arrival in port they were ſent to the hoſpital. By theſe timely precautions not more than fifty were infected; the latter caſes were trifling compared with the firſt, of whom one or two died. Thus the Southampton may be ſaid to be the firſt ſhip cleared while at Spithead.

Being fully ſenſible of the danger to which the greateſt part of our ſhips had been expoſed, from a general contagion, I did not wait for reports coming to me from the ſurgeons on the progreſs of the infection; but made it my buſineſs to ſee the whole. In the Majeſtic and Ramillies, particularly, ſome bad caſes appeared, with every ſymptom of malignity; alſo in the Barfleur, Cæſar, Valiant, Bellerophon, Alfred, and Invincible. I have formerly mentioned, that the Majeſtic had taken poſſeſſion of the Sans Pareil, and that the communication between them rendered her crew more liable to the fever.

In the beginning of July the weather continued ſtill ſultry to an uncommon degree.

Another frigate, the Circe, had been very early infected at ſea, by means of ſome of the priſoners

taken out of the courvette, before the action on the 1ſt of June; but in this ſhip it made but little progreſs: Mr. Dunn's report only mentions twelve; and theſe are not ſaid to have been attended with much danger. From the nature of the fever being quickly detected, the Circe's people were ſoon ſecured againſt its future attacks.*

The infected ſhips, during the month of July, were employed in the means of ſtopping the contagion. Thoſe officers who had confidence in fumigation, performed it every morning: the decks were kept clean, and the whole inſide white-waſhed: conſtant attention was paid to the cleanlineſs of the people's cloaths, and the bedding was ſpread abroad every day to air. The ſeamen were ordered to keep themſelves clean in their perſons,

* "During the early part of the cruize there were few complaints of a ſerious nature. Several priſoners from a French courvette, and other prizes, were ſent on board the Circe; two of which were ſoon attacked with ſymptoms indicating an alarming fever. Some of our beſt men became daily affected in a ſimilar manner; want of appetite, nauſea, a foul tongue, ſome degree of tenſion of the ſkin, with coſtiveneſs, were the moſt obſervable appearances. Emetics were adminiſtered early in theſe caſes, and blood-letting avoided where there were no violent ſymptoms of inflammation. Purgatives were neceſſary to clear the inteſtines, and relaxation of the ſurface was kept up by antimonials, ſometimes combined with opiates. Three or four days illneſs was ſure to induce great debility. A free uſe of wine was highly reliſhed by them all; and they ſoon gained their uſual ſtrength.

(Signed)

Circe, June 1794. ROBERT DUNN, Surgeon."

persons, and to shift more frequently. Fires were kindled in pots in the hold, well, and bread-room; stoves in the orlop, cabletiers, and fore and after cockpits. Care was taken that the circulation of air through the wings should not be interrupted; and, besides the common windsails, two stunsails were fitted for the fore and main hatchway, so that every corner below was pure and compleatly perflated by the air; some of these sails were kept trimmed during the night, so as to counteract the effects of the heat when the ports were down. A quantity of vinegar in an iron pot was frequently, in the course of the day, converted into vapor, by plunging a red hot loggerhead into it, or sprinkled over the decks. Such were the method which our officers persisted in; besides, the cables, sails, cordage, with all kinds of stores, were brought upon deck during the day, and the store-rooms, in the mean time, were ventilated and white-washed, so that not a particle of impure air could lodge any where. The immediate separation of the infected was, however, what I most depended upon; and not even the slightest cases were allowed to remain in the ship. The surgeons were directed to order their mates to walk frequently round the deck; and to watch those men who, while sitting in their berths, appeared dejected or solitary. This was always my own practice in an infected ship; because seamen will sometimes withhold their

 complaints

complaints for a day or two, under the idea that an incipient fever is only a common cold *.

Some officers, not without reaſon, were extremely alarmed at this general infection in the Fleet; and they apprehended accumulated danger from the very ſultry weather. The ſtate of the weather was, however, with me, a cauſe of conſolation: and a few who watched my opinion on the ſubject, with ſome ſuſpicion, did not fail to confeſs, in a very ſhort time, that their apprehenſions were removed.

The Valiant had been for ſome weeks clear of her former infection, when this fever made its appearance. It fell, however, into proper hands. Mr. M'Callum detected the firſt ſymptoms of it among the marines, who had been centinels over the priſoners under the half deck: other ſurgeons, with equal accuracy, diſcovered it firſt among the quarter-maſters, or thoſe who ſlept near the edge of the hatchways that led to the hold where the French were confined.

The Queen Charlotte was ſaved from this fever, by ſending all her priſoners with the leaſt ſymptom of

* I have mentioned *white-waſhing*, among our preventive means: it is, I believe, a general practice, and ſuppoſed to be uſeful by attracting *carbonic acid gas*, from the atmoſphere. In our *hygeine*, we, however, employ it as a part of cleanlineſs, and as giving to the decks a cheerful pleaſant appearance: it will, in this manner, inſpire agreeable ſenſations from light and delicacy, and may have its ſhare in the ſcale of general ſtimulants, to fortify the body againſt debilitating powers.

of indiſpoſition, to the number of ſeventeen, on board the Charon, at ſea. One of theſe patients died next morning, with every ſymptom of malignity. How far every ſhip might have availed themſelves of this ſalutary precaution, I cannot pretend to ſay; but it ought to be attended to in future; and an hoſpital ſhip provided, ſufficiently large to accommodate the ſick of a large Fleet, on ſimilar emergencies.

The Royal George did not ſeem to ſuffer much from the infection. Mr. Shepherd, in his report for Auguſt, mentions thirty-three fevers, only ten of whom were ſent to the hoſpital; they aſſumed a bilious remittent form, probably partaking of that type from the ſeaſon.*

In the Ruſſel alſo, in the month of Auguſt Report, Mr. Stephenſon mentions a ſlight fever, that had not been known during the preceding month. Now, this ſhip and the Royal George, were

* "During this month we have had more fevers than at any former period; moſtly of the bilious remittent kind; which, in general, terminated favourably, by clearing the ſtomach and bowels of their crude and acrid contents, which produced a remiſſion; when the bark, wine, and a reſtorative regimen, compleated the cure.

The caſes (10) ſent to the hoſpitals were inclined to degenerate into the low ſhip fever.

(Signed)

Royal George, Aug. 1794. RICHARD SHEPHERD, Surgeon."

were probably infected, by one of our own ſhips, during the frequent communication, while in harbour.*

While we were employed in clearing the Channel Fleet of this fever, a vaſt mortality is ſaid to have prevailed among the French priſoners, in the neighbourhood of Portſmouth and Plymouth. Not only the nurſes and attendants on the priſoners, at Forton and Hilſea, but even the Middleſex Militia, who did the duty of guard over them, were affected; ſome of whom died. I have not been able to learn, what means were practiſed to check the ravages of this fatal diſtemper, among thoſe men whom the fortune of war put into our hands. There was employment enough for me at Spithead; but I have been told, that three hundred and thirty-eight Frenchmen died at Forton alone, in leſs than four months.

From the arrival of the fleet, on the 11th of June, to the final extirpation of this fever, 800 caſes were ſent to Haſlar Hoſpital, of whom forty died, which is one in twenty. This mortality was, in every ſhip's crew, confined to the earlieſt ſtage of infection: out of one hundred and forty-ſix, ſent by the Barfleur, ſeven died the firſt fortnight: the laſt hundred ſent, were ſlight, and ſoon recovered. A few were ſent from the ſhips of

* "The fever appeared of the ſlighteſt kind; but the ſhip being fitting for ſea, they were ſent to the hoſpital as ſoon as the ſymptoms appeared.

(Signed)

Ruſſel, *Aug.* 31, 1794. J. Stephenson, Surgeon."

of the fleet at Plymouth, to that hoſpital, but I have not obtained the return. We ſuſpect that a winter contagion would have produced a very different degree of mortality from what we ſee here; and alſo a more permanent diſeaſe.

Towards the end of July, our endeavours had been ſo far ſucceſsful, that I did not heſitate to pronounce the tainted ſhips fit for ſea. What caſes appeared at this time, were either with diſtinct remiſſions, or the ſymptoms ſo moderate, as to yield to trifling remedies. In the Glory it was protracted from particular cauſes *. Sir G. K. Elphinſtone hoiſted his flag on board the Barfleur, and a draught of a hundred men was ſent from one ſhip to the other. The brave crews of both ſhips thus parted with their officers, and with one another. Never did poet or painter delineate the pangs of ſeparation in a more affecting manner, than was exhibited in this exchange of ſhips. There was a fault in not moving the whole. Of the hundred men to be ſent from the Barfleur, to replace thoſe of the Glory, were ſome ill of the fever, or convaleſcent at Haſlar. The depreſſion of ſpirits, on being told that they were to go to another ſhip, occaſioned immediate relapſes in ſome, while others, for a time, ſeemed to ſink under it. A degree of contagion was, however,

* The Glory was fitted for the flag of Sir G. K. Elphinſtone before the cruize, but this officer did not join the fleet at that time.

carried to the Glory, by this means: but never did the attachment of a British sailor to his shipmate and officers, appear under more heroic tokens of friendship! It was truly worthy of the 1st of June! *

It

---

* EXTRACTS OF REMARKS FROM SURGEON's REPORTS.

"There was nothing particular appeared in the fever of this month, until the twenty-third; when we received some men belonging to the Alfred, who had been some time on board the Juste French prize, with a few belonging to our ship. Three of the Alfred's men were taken ill the day after they came on board, and two of ours. It was evening when they complained: they each had an emetic, and next morning were sent to the hospital The symptoms were chiefly great debility, with pain in the back, and redness of the eyes, with a wildness in their looks, and tremor of the tongue, &c.

(Signed)

Invincible, June 1794. T. Kenning, Surgeon."

"Five cases of typhus have occurred during this month: in my opinion, they were caused from contagion, in consequence of having on board a number of French prisoners. They were sent to the hospital.

(Signed)

Glory, June 1794. P. Smith, Surgeon."

N. B. During the greater part of the time that the fever prevailed in the Barfleur, Mr. Heath, the Surgeon, was on shore, attending Admiral Boyer, who had lost a leg in the action; consequently no reports were sent to me. This ship sent more men to the hospital than any other. *T. T.*

"The

It having appeared to me, during the late operations of the fleet at sea, that the diet of the hospital ship was extremely deficient, in articles of

"The Alfred had been remarkably healthy, previous to the French prisoners being sent on board; the fever was imported by them. Every means have been used to stop its progress; in which we have now, in a great measure, succeeded.

(Signed)

Alfred, July 1794. JOHN BIRTWHISTLE, Surgeon."

"The fever has, for the last three or four days, appeared to abate, in the frequency of cases; and the symptoms have become more mild. (Signed)

Ramillies, July 20th, 1794. JOHN PLUMPTON, Surgeon."

"Towards the latter end of this month, the attack of the fever became less violent, and generally seized those men that had been on shore for some days: * but from a suspicion that the contagion was not entirely gone, I sent them to the hospital shortly after they complained.

(Signed)

Invincible, July 1794. T. KENNING, Surgeon."

* Mr. Kenning, with great discernment, alludes here to the excesses, which seamen are apt to commit when on shore. When there is infection in a ship, officers ought carefully to prevent intoxication, and to keep their men constantly under their eye. For this reason, no person should be suffered to go on shore; besides the hazard of carrying the disease to other ships.—Vide Mr. M'Callum's Remarks, under the chap. Typhus. *T. T.*

of comfort for the ſick, which induced me to apply for ſome addition; the Lords of the Admiralty were pleaſed to comply with my application. We were now enabled to carry with us ſtock

---

"The fever which has for ſome time paſt been predominant, appears at this time to have nearly ſubſided. The ſymptoms in thoſe at preſent attacked, are not near ſo violent as formerly, when it appeared under a very malignant form. The debility was alſo great on former attacks: the eyes were much fluſhed, the tongue black and cruſty, with thirſt, and in ſome caſes with immediate delirium: the pulſe in general was quick and feeble. The fever was alſo remarkable, by being attended with ſore throat,* and conſiderable pain in the ſhin bones. No ſuch ſymptoms at preſent appear. Every attention is paid to cleaning and airing the ſhip.

(Signed)

Bellerophon, June 1794. J. B. HOUSEAL, Surgeon."

---

* Quere! Might not this unuſual complaint of the throat, be the globus hyſtericus; a ſymptom which I have myſelf, very frequently obſerved in the incipient ſtage of typhus?

T. T.

"The Majeſtic's ſhip's company were tolerably healthy from the time of the Fleet leaving port, the 27th of April, until ten days after the action of the 1ſt of June, as the Sick Liſt never exceeded in number thirty-five, during that period; and as there were ſeldom more than two or three ſick confined to their hammocks at that time. A catarrhal fever, whoſe type was remittent, and character benign, was the epidemic. It ſeldom continued longer than three days, going off by ſweat, or expectoration: in ſome the parotids were

ftock and vegetables, fruit, pickles, eggs, porter, &c. and to purchafe milk, when in port.

Auguft 16. This day I vifited a fquadron of Portuguefe fhips, confifting of five fail of the line, a frigate,

---

were confiderably fwelled; in others, the fauces were inflamed. In the fcorbutic and pulmonic, it occafioned a troublefome cough and expectoration, which continued for fome weeks, and which required blifters, expectorants, and in fome, bark and opiates.

On the memorable 1ft of June, we had not a man from his quarters, on account of ficknefs; but on that and the following days, having received upwards of two hundred French prifoners from the Sans Pareil, moft of whom were highly fcorbutic, and many of them had been attacked by an infectious fever, epidemic, on board that fhip, for feveral weeks: a very great alteration foon took place in the health of our fhip's company.

The caufes of ficknefs among the people of the Sans Pareil, as fuppofed by the furgeon and officers, were attributed,

1ft. To the fhip's company being moftly compofed of land-men, who neglected to keep themfelves clean:

2dly, The vapor of bildge-water; the cocks for watering the well in French fhips, being now fuppreffed:

3dly, Humidity of the fhip: being newly conftructed, and no means being ufed to obviate the ill confequences of humidity below, by means of fires, wind-fails, &c.

4thly, To the intemperature of the weather, which, during a two months cruize to the weftward, they had experienced to be unfettled, dark, foggy, and humid.

The

a frigate, and two brigs, under the command of Rear-admiral De Valle, who were come to join the channel fleet. It did not appear to me, on walking round the different decks of these ships, that

The French prisoners confined in the hold, in calm, sultry, foggy weather, were soon attacked with fever, in considerable numbers. The origin of it, the subjects it attacked, the extreme debility, despondency, universal lassitude and pains, dejection of countenance, fœtor of the breath, irregularity of type, and the eruption of petechiæ, or marbled appearance on the skin, all shewed the malignant nature of the disease: which, with Sauvages, may be termed, *febris nautica*: with Huxham and others, *febris putrida, maligna, petechialis*: with Burserius de Kanefeld, (Institutiones Medicinæ Practicæ) who, in opposition to most of our English authors, and I think with justice, looks on it as an exanthematous fever, *sui generis*; *morbus petechialis*: and to which opinion the people accede, terming it the *purple fever*. *

The infected prisoners were removed, as soon as possible, on board the Sans Pareil, where they died in great numbers. About the 10th (of June) the disease began to make its appearance among the Majestic's ship's company: the approach of the *solstice*, and the *canicula*, seemed to have considerable influence on the spreading of the complaint; as, notwithstanding

* These spots are not cutaneous eruptions, they are not to be felt on sliding your finger over the surface; they are not a disease of the skin, but small effusions of venous blood, in the cellular texture, which are seen through the integuments: when a number of them run together like stripes, we call them *vibices*. Dr. Darwin says they are owing, as in scurvy, to diminished venous absorbtion. *Zoonomia*. *T. T.*

that they had many ſick on board; but in all of them I could perceive people loitering about in a ſtate that did not indicate perfect health. None of them were confined to bed, yet there were evidently

---

ſtanding the precautions uſed, many were attacked with it. Having ſent ſixty-eight perſons to the hoſpital; at preſent its violence ſeems diminiſhed, as we have only ſent three within the laſt four days.

With regard to the treatment of this diſeaſe, in ſuch patients as were kept on board; bleeding was not indicated in any I have ſeen. A gentle emetic of ipecacuanha, or infuſion of chamomile flowers, given in the beginning, had good effects, and followed by a ſudorific opiate, as theriaca, at night, and wine and bark the ſucceeding days, appeared to check the progreſs of the complaint in its origin.

Keeping the belly open, by injections and tammarind decoction, ſeemed to anſwer very well. Neutral ſalts, as nitre joined with camphor, ſeemed to have ſalutary effects. Bliſters, in the advanced ſtage of the complaint, when the head and breaſt were much affected, had evidently the beſt effects.—When the degree of fever was not high, and diſtinct remiſſions took place; when the determination to the head and breaſt was not great, the tongue moiſt, and the belly not conſtipated, the bark, though it did not always arreſt the fever in its courſe, was attended with good effects, by ſupporting the ſtrength of the patient, and obviating a tendency to putreſcency: the ſame may be ſaid of wine, prudently adminiſtered. Opium and antimony, except when uſed as a diaphoretic in the beginning, as is mentioned above, appeared to me to be attended with diſadvantageous effects: the firſt occaſioning, or increaſing delirium, coma, extreme debility, conſtipation, &c.; and

evidently among their complaints, the milder degree of ſhip-fever. When I conſidered the nature of the climate to which theſe people were accuſtomed, and the change which they muſt ſoon experience,

---

and the latter debilitating the patient very much, bringing on diarrhœa, ſuppreſſion of expectoration, conſtant nauſea, &c.

The eruption of petechiæ, or marbled appearance on the ſkin, preceded by pain of the back and loins, oppreſſion at the præcordia, ſighings, pain and heavineſs of the limbs, and irregular weak quick pulſe, generally ſhowed itſelf from the 4th to the 7th day.——The diſeaſe generally went off about the 14th or 17th day, moſt commonly by perſpiration; whilſt the appearance of *concoction* took place in all the excretions.

A copious expectoration proved *critical* to ſome of thoſe who had been affected with pulmonic complaints: a diarrhœa appeared to be *critical* with others; but, in general, it was ſymptomatic, and attended with danger.

(Signed)

Majeſtic, July 20, 1794. LEONARD GILLESPIE, Surgeon."

" It will appear, by comparing the preſent month's ſtatement of health with the preceding, that the infection, which was at that time prevalent, appears now to be totally obliterated; only eight being ſent to the hoſpital this month, and theſe but little indiſpoſed.

(Signed)

Bellerophon, July 1794. J. B. HOUSEAL, Surgeon."

" On my joining the Glory, I was informed by my predeceſſor, that ſhe had been always very healthy; and, particularly,

tience, towards the fall of the year, in our channel ſervice, I could not help telling Sir Roger Curtis, Captain of the fleet, that the firſt gale of wind, and wet weather, in the ſailor's phraſe, would *knock* the whole of them up.

August

---

larly, that ſhe had eſcaped a fever, with which many of the ſhips had been infected, after returning from the late cruize. However, as ſhe had received a number of men from a ſhip much afflicted with fever, there was every reaſon to expect, that ſhe might ſoon become tainted with a ſimilar diſeaſe. This, in fact, happened; and it has continued ever ſince. Although none have died on board, or at the hoſpital, as far as I have learned, it has nevertheleſs been very diſtreſſing, and continues to rage, notwithſtanding the greateſt attention to get it under. When it had the appearance of getting better, I imagine it gained freſh vigour, either from a man returned from the hoſpital with a high degree of fever upon him; or, from the apparel of the men brought out of the filthy bed-houſe at Haſlar, which, I believe, has been often the ſource of contagion.*

(Signed)

Glory, Auguſt 1794. GEORGE M'CALLUM, Surgeon."

---

* My benevolent friend had been five months in infected ſhips; and hence his cauſe of complaint. A governor, with three lieutenants, being now in that hoſpital, on a liberal allowance from government, it may be expected, that the cloaths and bedding will not only be frequently taken out of the houſe and aired, but that every ſpecies of apparel will be returned to the ſhips, with the men, all pure and well waſhed, as they ought to be. *T. T.*

August 22. This day the whole of the fleet dropped down to St. Helen's, confifting of thirty-four fail of the line, befides frigates.

While the fleet lay at St. Helen's, there were fome cafes of fever fent from the Royal Sovereign and Orion, to the hofpital-fhip. Thefe fhips had refitted at Plymouth, after the action of the 1ft of June, and had been but a fhort time at Spithead. A feaman belonging to the Orion died. The whole of our patients were fent on fhore, in order to keep the hofpital clear for fea-fervice.

September 3. The fleet failed with the wind at N. N. E. September 5th, fell in with the homeward-bound Eaft India convoy, on a different tack, in the night. From the darknefs of the night, fome of our fhips run foul of the Indiamen, one of whom was difmafted: this obliged the Admiral to bear up for Torbay.

September 7. The fleet failed from Torbay.

From the 18th of September to the 22d, we experienced fevere gales of wind from the weftward. Many of our fhips fuffered; but the Portuguefe fquadron was in extreme diftrefs, fome of the fhips having loft foremaft and bowfprit. This induced the Admiral to return to Torbay.

September 23. This day I vifited the fhips of the Portuguefe fquadron, by Earl Howe's order, and

and reported their ſituation to him in the evening. The purport of my report was nearly as follows: "They are all ſickly, and a contagious fever is prevailing among them. Since the bad weather at ſea, they have rapidly increaſed in the number of their ſick."—There is ſo great a contraſt between the appearance of one of theſe ſhips, and an Engliſh man of war, that to go from the one to the other, was like coming from a ſepulchre to a banquet. Not only the men, but even the officers themſelves, are accuſtomed to lie down in bed with their clothes on: the beds of the people are ſpread along the deck, and not ſlung in a hammock, as with us. At the time of my viſit, much trouble ſeemed to have been taken to give their ſick an appearance of delicacy, for they were all laid on new beds, with clean ſhirts on. But I well knew, that under ſuch circumſtances, and naſty habits, as laying upon deck, neither health or cleanlineſs could be preſerved. Contagion muſt therefore ſpread among them, with uncommon rapidity.. In a future part of this work, I ſhall mark ſome peculiarities of conſtitution, in the inhabitants of warm countries, that ſeem to favour the action of typhous infection, when they come to a northern latitude. On this account I hinted to the Admiral, that it would expedite the recovery of the ſquadron, to return immediately to their own country: but this was impracticable at

at the time, from their diſabled ſtate. The Gama, the flag-ſhip, had one hundred and twenty fevers in her liſt; none had yet died, but there were many dangerouſly ill.

In the Reine de Portugal, commanded by the Marquis de Niza, an accompliſhed young nobleman, five had died. The liſt was increaſing faſt. I had opportunities of ſeeing ſome, with the firſt rigours upon them, attended with great apprehenſions for their ſafety, and an extreme dejection of ſpirits. The other ſhips were more or leſs in the ſame ſituation. This ſquadron was ordered to Plymouth to refit, and purify themſelves from a general infection.

It is worth while to remark, that this fever exactly correſponded with one which infeſted a ſquadron of her faithful Majeſty's ſhips, which came to Spithead the preceding year; many of whom were ſent to Haſlar Hoſpital. *

September

Charon, September 23, 1796.

* "SIR,

In my report to Admiral Earl Howe, concerning the ſickneſs prevailing in the ſquadron of her faithful Majeſty's ſhips under your command, in Torbay, I have had occaſion to ſtate, that the fever is of a contagious nature, and likely to gain ground as the cold weather approaches. Many caſes are, no doubt, ſlightly affected; but there are others with every ſymptom of malignity and danger.

" I have alſo ſtated, that according to your cuſtom of ſervice, the ſick and ſound are laid on deck; a practice highly

improper,

September 27. The hoſpital-ſhip having received ſo much damage during the late heavy gales of wind, and her ports not being water-tight, it was deemed expedient to ſend her to Plymouth to refit. The whole ſick of the fleet, amounting to ſeventy, were ſent on board the Charon to be carried to the hoſpital. Theſe conſiſted of a few caſes of phthiſis, one of ſmall pox, ſome of chronic rheumatiſm, ulcered legs, and eight invalids, from the Barfleur.

At this time there was not a ſingle fever in the fleet, that could be ſaid to have originated from contagion, or the leaſt remnant of that ſpread from the French ſhips. Thus ended an

H infection,

---

improper, as it expoſes them to the moiſture of the deck, muſt create filth, and generate and extend contagion.

"I have ſtrongly recommended a more liberal uſe of wine; but I know that your ſurgeons have very different ideas, from their theories of fever.

"I am at a loſs to recommend any methods of prevention under the circumſtances of your ſhips; and have only hinted to the Commander in Chief, that the health of your people very much depends on the ſpeedy return to a climate more adapted to their conſtitutions than the cold of our winter.

I have the honour to be,

S I R,

Your moſt obedient,

and very humble ſervant,

To T. TROTTER.

Rear Admiral de Valle, &c.

infection, the most general that was ever spread in a large armament; and which, under other situations of season and discipline, might have proved fatal to the channel fleet of Great Britain. The speedy extinction of it will reflect everlasting credit on the officers of those ships where it appeared; and their exertions will remain a fine model for their successors to imitate, under similar circumstances of service.

I have remarked, that a case of small pox was sent on board the Charon; but the ship's name, from whence he came, has been omitted in my Journal. It was in the eruptive stage, and the disease affected no others where he belonged. Having given orders to inquire whether our patients had all passed through the small pox, it was found that three never had the disease. In a former part, I mentioned that six people and a child had been inoculated in the Charon, during the summer cruize. These patients were now ordered to be inoculated as soon as matter could be procured from the pustules of the other man. This was, however, neglected by the Surgeon's mate: while at Plymouth Hospital, the small pox appeared in the natural way, of the confluent kind; and I am sorry to add, two out of the three died.

October. The Portuguese squadron having arrived in Hamoaze, to refit and purify, opportunities

tunities were now given me to learn ſtill farther the iſſue of the contagion which appeared among them in Torbay.

The Europe, a third rate in ordinary, was allotted to them for an hoſpital, and fitted accordingly; but from the numbers daily taken ill, in all the ſhips of the ſquadron, ſhe became ſo crowded, in the ſpace of three weeks, that no room was left to receive more. It was during this diſtreſſing condition, that Admiral de Valle requeſted me to meet the Phyſician to Plymouth Hoſpital, on board the Europe, to examine the ſtate of accommodation, as well as that of the people, and to report to the Lords Commiſſioners of Admiralty, the rapid extenſion of this prevailing fever, among the ſeamen of the ſquadron.

After waiting two hours beyond the appointed time for the phyſician of the hoſpital, I propoſed Dr. Mein, of the Caton hoſpital ſhip, as an aſſiſtant on this neceſſary, though dangerous duty. To this the Doctor very cheerfully conſented; it would, indeed, have been cruel to refuſe attendance, as the ſafety and comfort of ſo many human beings depended much on our ſurvey and ſtatement of the caſe.

There were, at this time, on board the Europe, five hundred people, in different ſtages of the fever. The lower gun-deck had, at firſt, been the only part appropriated for the ſick; but it could not

contain two hundred cradles without being crowded; other parts of the ſhip were therefore occupied. We found the ſick ſufficiently clean in their perſons, and beds alſo: but, as I have formerly remarked, there was ſome doubt that this was always the caſe; and it could not be expected, that in ſo ſmall a ſpace, either diet or attendance could be complete. The orlop deck being full in every corner, from its very imperfect ventilation, was literally peſtiferous. The ſmell was intolerable; we walked round the fore and after cockpits; but were not able to make many inquiries, or to attend to every particular; indeed, reſpiration could not be immediately accommodated to an atmoſphere, not only deprived of much of its oxygene, but ſtrongly charged with contagious matter. The moaning and ghaſtly looks of the whole; the ſkin ſallow, livid, and black; *petechiæ & vibices*; tremors, *ſubſultus tendinum*, and in a few general convulſions; groans of the dying, and thoſe in pain; raving of the delirious; tongue black, parched, and tremulous; the breath fœtid; reſpiration quick and laborious; the eyes ſunk, fixed, glaſſy, moiſtened with tears; were among the prominent features of this hideous groupe of human miſery! The convaleſcents were kept on the upper deck, but from being much expoſed to cold and wet weather, many of them ſuffered relapſes.

From this survey, the crowded ſtate of the Europe was repreſented to the Admiralty Board: another ſhip was immediately ordered by their lordſhips to accommodate the ſick of this unfortunate ſquadron, and one of their own ſhips was appropriated for convaleſcents alone. What proportion of deaths happened I have not been able to learn: but the mortality here, as in all ſimilar ſituations which I have witneſſed, was greateſt among thoſe ſeized at the early period of infection, when the diſeaſe appeared under the moſt malignant form. Theſe ſhips had ſo far recovered about the middle of February, that they ſailed for Liſbon; leaving behind, on board the Europe, near three hundred men, under the care of Dr. Mein.*

The

* REPORT TO THE ADMIRALTY.

"SIR,

The commander in chief of the Portugueze ſquadron, in Hamoaze, having requeſted me to ſurvey his people on board the Europe; yeſterday, accompanied by Dr. Mein, of the Caton hoſpital ſhip, I performed that duty.

"Admiral de Valle, having requeſted us to report the condition of his ſick, for the purpoſe of laying it before the Ambaſſador of his Court, in London; I am alſo deſired to make known to you, for the information of the Lords Commiſſioners of Admiralty, the ſtate of theſe people.

"In addition to my report, made to Admiral Earl Howe, when ordered to inſpect theſe ſhips at Torbay, I have only now

The precautions which I chiefly recommended to Admiral de Valle and his officers, were the immediate ſeparation of the infected; plenty of warm cloathing; no waſhing of decks, but in lieu of it, dry rubbing, or ſcraping; wind-ſails for the orlop deck; fires to be kept conſtantly burning, for preſerving their ſouthern conſtitutions warm; *bunting* ſaſhes for the lower deck ports; the utmoſt attention to cleanlineſs, both of perſon and cloaths;

---

now to obſerve, that what I then ſuſpected, has been too early verified; the fever having become progreſſively worſe. From the number daily taken ill, the Europe is ſo crowded, in every corner, that much danger muſt ariſe from ſo many people, in a diſeaſe highly contagious, being confined in ſo ſmall a ſpace. Means cannot therefore be too ſoon deviſed for thinning their preſent quarters, and preparing other apartments for their accommodation.

" The number of deaths is now conſiderable; and caſes in the moſt dangerous ſtage of the fever, bear a very large proportion. We have recommended every method for prevention, uſual in ſuch ſituations: but ſo much in the preſent inſtance depends upon peculiarity of conſtitutions, diſcipline, and habits of the people, that we cannot flatter their Lordſhips with the proſpect of a ſpeedy extinction of the contagion.

" I have the honour to be,

SIR,

Your moſt obedient,

And very humble ſervant,

T. TROTTER.

To

PHILIP STEPHENS, Eſq.

Admiralty Office.

cloaths; a pint of wine *per diem*; no expoſure to moiſture; and laſtly, the utmoſt exertions in officers to keep the minds of the people engaged, ſo as to inſpire confidence and cheerfulneſs, and to divert them from thinking on the danger of infection. Theſe forms, I believe, were as ſtrictly attended to, as the nature of the diſcipline would admit. The worthy officer who commanded the ſquadron, was moſt ſenſibly afflicted with the ſufferings of his people, and was borne down with the calamity when I firſt met him at Plymouth: but I had the ſatisfaction of ſeeing him recover his ſpirits. From this time the general health of his ſhips became better.

The Charon having undergone what repairs were found neceſſary, returned to Torbay, on the 3d of November; bringing with us what recovered men were fit to join their ſhips.*

We

* The day after I viſited the Europe, being employed in preparing the report for the information of the Portugueze Ambaſſador, I was more or leſs affected with head-ach. As I was about to ſit down to dinner, at three o'clock, a meſſage came from Rear-Admiral Bourmaſter, on board the Glory, in Cauſand Bay, deſiring to ſee me, as he was very ill. I went on board the Glory immediately; and, from being much fatigued at my return, went early to bed. About four in the morning I waked, extremely agitated, with ſickneſs at ſtomach, ſhivering, &c. I now lived with Dr. Mein, on board the Caton, and deſired the ſervant to call him. He agreed with

We now received the ſick of the Fleet, chiefly the diſeaſes of the ſeaſon, catarrhs, rheumatiſms, &c. and with them on board we proceeded to Portſmouth. The Fleet returned to Spithead about the 24th of November.

The weather, during the months of October and November, was mild as to temperature, but thick and hazy, with much rain, and hard gales of wind from the ſouth-weſt quarter; which obliged the Fleet to put into Torbay repeatedly for ſhelter.

There had been a total exemption from ſcurvy ſince we left Spithead; owing, in a great meaſure, to a general ſupply of ſugar and lemon juice, diſtributed to the ſhips on leaving port in the end of Auguſt.

Early in December a ſevere froſt ſet in, which continued, with frequent falls of ſnow, all the month.

---

with Mr. Worgaen, that an emetic would be proper, leſt the attack ſhould be from typhus contagion. I took ſome ipecacuanha wine, which excited ſufficient vomiting; and felt no more of the complaint. Fatigue, and expoſure to cold, were probably the cauſe of my indiſpoſition.

— 1795. —

The froſt continued equally ſevere all the month of January, and the thermometer fell frequently ſo low as 22° of Farenheit: ſome days it blowed extremely hard, with ſnow and hail, from the N. E. About this time it was reported that the French fleet had put to ſea in great force, with the view of intercepting our outward-bound Weſt India convoy. This report was ſoon confirmed by Sir Sidney Smith, in the Diamond frigate, going into Breſt, and hailing a ſhip of the enemy's line, that had returned diſmaſted from their fleet to the weſtward.

Jan. 26th. The Fleet having aſſembled, Earl Howe ſailed from Spithead, with thirty-three ſail of the line, and ten frigates, &c.

The wind coming to the weſtward, when off Plymouth, the Fleet put into Torbay, on the 1ſt of February.

The Cumberland, of ſeventy-four guns, arrived at Spithead on the beginning of January, from the Nore, and newly fitted. Her ſick liſt, which was one hundred and nine, ſurprized the Admiral, that he doubted of her ability to go to ſea in ſuch a ſeaſon. On my firſt viſit, the liſt had increaſed to one hundred and twenty; but I found none

none of them confined to bed; and their complaints were all of the catarrhal kind. What tended, perhaps, in a great degree to aggravate the disease among this ship's company, was the receiving a great part of her complement from the Vengeance, just returned from the West Indies; and consequently the constitutions of her crew were more susceptible of cold. A few of the worst cases were sent on shore; but I did not find the symptoms, in general, run so high, as to make me hesitate a moment whether the Cumberland was in a condition for actual service. Captain Rowley was very active in procuring them what additional cloathing the weather indicated, and his people, for the cruize, did very well.

This catarrh had all the appearances which usually characterize it when epidemic. While the Fleet remained at Spithead, the only ship besides the Cumberland affected with disease, was the Colossus. The number of her sick, on the weekly account, induced the Admiral to order me to report her situation. It was a prevailing catarrh. Some of her men were confined to bed, with a considerable degree of fever, and stricture about the breast: the worst of the whole were sent on shore to the hospital.

While the fleet remained in Torbay, the weather was very unsettled; sometimes a southwest

wind,

wind, with rain, at other times northweſt, with ſnow; on the whole it was bleak, wet, and cold.

Before the 5th of February, the Catarrh was more or leſs general in every ſhip of the fleet. This epidemic, on former occaſions, has been traced to have gradually ſpread itſelf from the ſhores of the Baltic, or the Low Countries, to all the ſouthern and weſtern provinces of Europe. The firſt ſhip affected in our fleet, the Cumberland, came from the eaſtward, the Nore, where alſo other ſhips at the ſame time complained. It is not improbable but a certain conſtitution of the atmoſphere is neceſſary to produce it, and give it vigour, although it is afterwards ſpread from one perſon to another. Its general progreſs in the fleet, in ſo ſhort a time, juſtifies this idea; for there were ſhips with the diſeaſe on board, where no communication with any other could be ſuſpected.—In the year 1782, a ſimilar catarrh prevailed in the Channel Fleet, then in the North Sea, under the command of Earl Howe. It ſpread with inconceivable rapidity over the whole. The fleet was obliged to return to port, and it was ſome time before the diſeaſe diſappeared: a conſiderable number of deaths was the conſequence. A ſquadron of eight ſail of the line lay at that time in Torbay, under the command of Rear-admiral Kempenfeld. The influenza firſt made its appearance on board the Fortitude of

ſeventy-

ſeventy-four guns. Mr. M'Nair, the ſurgeon, informed me, that only a few men complained in the evening: but ſo quick was its progreſs throughout the ſhip's-company, that next morning when all hands were called to weigh the anchor, more than two hundred ſaid they were ſick, and could not come to the capſtan. The Fortitude was therefore ordered to Plymouth, to ſend her people on ſhore: but the other ſhips that went to ſea, were obliged to return, nearly as bad of the ſame diſeaſe, two days after.

When the catarrh was epidemic in 1782, I was ſurgeon of the Buſtler ſloop of war, at Plymouth: I was affected with the diſeaſe in a ſevere degree. In the preſent caſe I was alſo a ſufferer, and had a relapſe, from expoſing myſelf too ſoon in the boat, to rain and cold weather, in Torbay.

February 14. The fleet ſailed from Torbay. In two days the immenſe convoy for the Weſt Indies, Liſbon, Mediteranean, &c. were able to get out of Hamoaze, when the Admiral made ſail to the weſtward.—In the mean time the French fleet had returned to port in great diſtreſs; with the loſs of five ſhips of the line, and other damages, from gales of wind.

February 20. Off Cape Finiſterre.—The weather uncommonly mild and fine. Therm. 52°.

February 25. Arrived at Spithead.

The

The fleet was now almost free of the influenza; only one hundred and sixty men, in various diseases, after a month's absence, were sent on shore at Haslar. The number of deaths during this epedemic, was twenty-eight.

A fever, of the typhus kind, appeared among the gentlemen of the Invincible in Torbay, which extended to a number of cases. Yet it is singular, that it did not affect any of the seamen, although some of them attended their officers, who slept in the gun-room, and where communication with the ships-company was not prevented *.

March

* "In the last week of January, two gentlemen in the cockpit were taken ill with a bad fever. The reason that I did not take notice of it in my report for that month, was, that it did not appear to me to be of much consequence; but on the 2d. inst. when the third was taken ill, I had not a doubt but it was contagious.

Every precaution was taken to keep the gentlemen separate from one another: the worst were put into the gun-room. The attack was insidious for some days. They complained of chills, nausea and head-ach: one had a severe pain over the left eye, which lasted for a few hours, and then shifted to the other, and so on alternately. They took emetics on complaining, and the bowels were kept regular; afterwards the pulv. antimon. and about the fifth or sixth day of their illness, they took bark and wine, with a full dose of opium at bed-time. In one case the opiate did not procure rest; he passed a better night with only wine. I did not find that a more early use of wine was in any case detrimental; it was given

night

March 1ſt. The following STATEMENT, taken from the monthly reports of the ſurgeons, will give a general idea what the fleet experienced from the catarrh in the ſpace of ſix weeks; from the 18th of January to the 28th of February. It ought to be remembered, that what are mentioned here, are only thoſe, who from the degree of indiſpoſition, were admitted into the ſick liſt; ſlighter caſes are not taken notice of.

Influenza.		*Influenza.*		FRIGATES.	
Orion - -	480	Hector - -	150	Melampus -	53
Hannibal - -	314	Culloden - -	90	St. Margarita	21
Bellerophon -	104	Brunſwick -	180	La Nymphe	70
Cæſar - -	130	Royal Sovereign	160	Hebe -	58
London - -	272	Marlborough -	80	Aſtrea -	30
Barfleur - -	450	Leviathan - -	80	Thalia -	40
Queen Charlotte - No Report from her Surgeon.		Venerable -	270	Aquilon -	64
Impregnable -	200	Invincible -	84	Creſcent -	44
Zealous - -	180	Robuſt - -	20		
Valiant - -	234	Cumberland -	260		
Audacious* -	130	Queen - -	12		
Ruſſel -	122 in port	Royal George -	30		
Tremendous -	60	Excellent - -	20		
Coloſſus - -	213	Canada - -	160		
Prince of Wales	184	Triumph - -	80		
		Gibraltar - -	20		
		Thunderer - No report from her Surgeon.			

While

night and day with the bark. In one a bliſter was evidently of ſervice: the patient was inclined to delirium, when the bliſter was applied, and in the morning he was better, and recovered

While the fleet lay in Torbay, the Admiral was pleaſed to order a number of ſheep to be given to every ſhip, in proportion to the ſick liſt, no freſh beef being allowed. This ſupply came opportunely for our convaleſcents, who fared ſumptuouſly from it, and ſoon recovered ſtrength. The mild weather during the paſſage to Cape Fineſterre, put an end to the epidemic.

March 6. In my general viſit to the ſhips, after our arrival at Spithead, many recent facts were offered to my obſervation; which ſupported the former arguments I have employed againſt the charge of fifteen ſhillings for the cure of the venereal diſeaſe. Theſe were of a nature too, that they could have been produced in evidence, had it been found neceſſary. In ſome of the ſhips were men who undertook to cure the diſeaſe in all

---

covered ſlowly afterwards. In the other caſe, bliſters gave uncommon pain, and the patient was worſe all the next day. When he was ſent to the hoſpital, on the twenty-third day of his illneſs there was no appearance of this fever among the ſhip's company.

(Signed)

Invincible, Feb. 28th. 1795. THOS. KENNING, Surgeon."

Mr. Kenning mentions fifteen caſes of fever, in his report for this month; twelve of whom were cured on board, the other three were ſent on ſhore to Dartmouth ſick quarters, and there recovered. *T. T.*

all its ſtages, and had more than one or two patients under their care. In others, the boats crews were in the practice of bringing medicines from the ſhore to their ſhipmates. A medicine often fatal, even in the beſt hands, was a popular remedy with them. (Vid. "A Review of the Medical Eſtabliſhment in the Navy. Bew, London, and Watts, Goſport, 1790.") This was no other than Hydrar. Muriat. Some conſulted itinerant quacks, who flock to the ſea-ports, and had paid largely for their advice while ſimple local complaints were converted into a confirmed lues. Several had withheld the knowledge of the diſeaſe from the ſurgeon, till the moſt excruciating and dangerous ſymptoms had ſupervened, and thus became objects for an hoſpital. On the whole, there were abundant proofs at hand, for a purpoſe, that I had long preſſed with both head and heart. I therefore reſolved to addreſs the Commander in Chief, officially, on the buſineſs. My repreſentation of the facts was received by Earl Howe and Sir Roger Curtis, with all that warmth of approbation, which the moſt affectionate concern for the comfort of our ſeamen could dictate, and for which the tranſactions of this fleet bear ample teſtimony. His lordſhip thought the ſubject of ſufficient importance to engage the attention of the Lords Commiſſioners of Admiralty, and laid it before them. The Board of Admiralty, after making the neceſſary inquiries as to the

amount

amount of the ſum, in the ſurgeons pay, were pleaſed to order an immediate ſtop to be put to the charge, and remunerated the ſurgeons by an allowance of money proportioned to the complement in different rates. This alteration has been received, by the liberal and ſcientific part of the liſt, with perfect ſatisfaction. To thoſe on foreign ſtations, it is almoſt clear gain, for few or no venereal complaints prevail in the ſhips on Eaſt and Weſt India ſervice. Thus terminated a perquiſite, illiberal from its inſtitution, inhuman in its practice, and impolitic from its continuance. It forms an epoch in naval improvements; for hundreds of ſeamen, have annually fallen victims to its effects *.

March

* EXTRACT of a Remark, from Mr. NICOLSON's Report for March, 1795.

"Ever ſince I have been a ſurgeon in his Majeſty's navy, I have obſerved men labouring under venereal complaints very backward in applying for cure; often till they cannot walk on deck in their watch. After tampering with themſelves for a length of time, to evade a diſgrace which they perfix to the diſeaſe, they are only fit for an hoſpital. They have alſo a diſlike to have fifteen ſhillings appear againſt their names in a ſhip's-book, and every ſiniſter means is made uſe of to eſcape the ſtigma. Hence a foundation is laid for a multiplicity of abuſes; among others, complaints are feigned to make them objects for an hoſpital.

"Now Sir, if venereal charges were altogether aboliſhed, and ſome recompence made the ſurgeon by way of medicine, there can be no doubt but the men would come forward, to get cured, at the firſt appearance of the diſeaſe, and thereby

I a great

March 15. The weather ſtill continued cold, and the winds for the moſt part eaſterly. The ſeverity of the winter had been general in this country as well as on the continent: great numbers of cattle and ſheep had periſhed in conſequence, and vegetation was every where deſtroyed. The prices of proviſions roſe in proportion, and beef and mutton could ſcarcely be procured. The allowance of freſh meat to the fleet, was curtailed to one ſerving a week; a diſpoſition to ſcurvy became therefore general in our ſhips.

I was early aware, from the concurrence of theſe cauſes, that a ſcurvy muſt ſoon appear in the fleet, if not counteracted by other means. For theſe reaſons, in order to keep the health of the people ready for emergency, I propoſed ſome alterations in the diet.

1ſt. In lieu of butter and cheeſe, which of late have been with difficulty procured, and oatmeal, let

---

a great many uſeful ſeamen would be preſerved, and the ſurgeon's duty unencumbered by a perquiſite, not very pleaſant in its contribution as part of his pay.

(Signed)

Audacious. E. NICOLSON, Surgeon."

July 12th 1796. At the time I am writing this; the good derived from the abolition of the venereal fine, is uniformly teſtified by every ſurgeon in the fleet. The men have every where made their complaints ſooner known, and there are few ſhips at Spithead whoſe ſick liſt contains *ſix* venereal patients. *T. T.*

let cocoa and ſugar be allowed for breakfaſt, as on Weſt India ſtations. Or let ſugar or molaſſes be mixed with the bargou, or oatmeal gruel, that the uſe of them may become general, by being made palatable. Query; why is oatmeal ſupplied if ſeamen refuſe tó eat it?—Rice and ſugar have been lately ſubſtituted for butter and cheeſe, but the people diſlike them.

2dly, Let the beer which is to be carried to ſea, be made of double ſtrength, with a larger quantity of hops to make it keep; and let two quarts be ſerved inſtead of a gallon of the ſmall beer. Which would make the expence equal, and not even occaſion a ſingle inconvenience in the forms of office.

3dly. Whenever the ſhips return to port, let them be ſerved abundantly with vegetables, in the freſh beef broth. This is ſtill a *deſideratum* in the diet of ſeamen. The quantity ought to be ſpecified, and not left to the diſcretion of a purſer, or any other officer, to withhold them altogether when they grow dear. At this time there is not a cabbage brought to any ſhip at Spithead.

4thly. Let ſome of the cheaper pickles be ſupplied; ſuch as red cabbages, walnuts, cucumbers, &c. and let them be ſerved in allowance with ſalt meat. Theſe are cheap articles, and fine correctors of ſalted diet. They are much to be preferred to ſour krout; grateful to the taſte, need no

waſhing or cooking, and quench thirſt when water grows ſcarce.

5thly. Let lemon juice be ſupplied to the ſurgeons for the cure of ſcurvy only. Caſes of ſcurvy are now appearing in the fleet, and were they ſupplied with lemon juice, the whole might be cured on board.

Such was the firſt repreſentation I judged it neceſſary to make about the middle of March. It was referred by their Lordſhips to the Commiſſioners of victualling, for their report; and I was afterwards informed that the molaſſes were ordered: but they did not come in time for Lord Bridport's ſquadron to be ſupplied on the 11th of June; conſequently the ſmall ſquadrons which ſailed before that time reaped no advantage from them.

March 17. Vice-Admiral Colpoys ſailed with the London, Valiant, Hannibal, Coloſſus, Robuſt, and two frigates. Some of the lemon juice that remained in the Charon, was given to theſe ſhips, for I knew full well that they would need it.

About this time a ſquadron ſailed for the Cape of Good Hope, under Sir G. K. Elphinſtone. Some of his ſhips were taken from the Channel Fleet, and had been expoſed to the general cauſes of ſcurvy, like others. On this account, as there was no time to have ſupplies of fruit from London, I recommended Sir George to order lemons

to

to be bought on the ſpot. This was immediately done, to the amount of fifty cheſts, at the ſale of a cargo for the benefit of the underwriters *.

Some caſes of ſcurvy ſoon appeared on board the Minotaur and Invincible; and freſh ones were daily added to other ſick liſts, which made a quick progreſs to the worſt ſtage of the diſeaſe †. The honourable Captain Pakenham, with his uſual generoſity, ſent ſix guineas to his firſt lieutenant, to be expended on fruit and vegetables, as the ſurgeon might think proper, as ſoon as he heard that the ſcurvy appeared among his people.

Finding the diſeaſe gaining ground in other ſhips; I alſo conſidered it my duty to repreſent the ſtate of the fleet to the Commiſſioners of ſick and hurt; and informed them, what appeared to me to be the cauſes of this general diſpoſition to ſcurvy throughout the whole of our ſhips; viz. the ſevere cold of the winter, the curtailed allow-

* To this precaution we are, in a great meaſure indebted, for the health of the ſhips at the reduction of the Cape.

† "The ſcurvy, within this laſt week, has made its appearance, in a ſevere degree, with thoſe that have complained of it: It is really a melancholly reflection, that ſeamen ſhould be attacked with ſcurvy at Spithead, when the means that would preſerve them from that deſtructive malady, are ſo well underſtood. I fear that many of our ſhip's company will ſhortly be laid up with it. As I have it not in my power to cure them on board, I muſt ſend all thoſe that appear to be tainted to the hoſpital."—Mr. KENNING's *Report for March.*

ance of freſh meat, and the deſtruction of vegetation. At the ſame time I begg:d an immediate ſupply of lemon juice, or the fruit in its entire ſtate, for the cure on board of thoſe already complaining, and to prevent our ſhips companies from being *broke up*, by ſending them to hoſpitals. Having given this information to the Commiſſioners, it was left to them to tranſmit this letter to the Admiralty, as they might think proper.

Moſt of the ſurgeons had a little lemon juice ſaved from the large ſupply in September laſt: this was given to the ſcorbutics while it laſted, and many were completely cured. When this was done, our men in ſcurvy were of courſe ſent to the hoſpital.

April 16. A ſquadron under Rear-Admiral Waldegrave, conſiſting of the Minotaur, Invincible, Excellent, Tremendous, and La Nymphe and Blonde, were ordered to ſea. The Excellent had many caſes of ſcurvy, and a general diſpoſition to the diſeaſe, prevailed throughout the whole of her crew. The lemon juice demanded from the ſick and hurt board, had not yet arrived; and there was much hazard in this ſquadron going to ſea, without a large ſupply of the vegetable acid. Having repreſented the ſtate of the ſhips to Admiral Waldegrave, and his orders to go to ſea not admitting of delay, under his authority I pur-

I purchaſed fourteen or fifteen cheſts of lemons and oranges, which were all that could be procured in Portſmouth. Theſe ſhips continued at ſea ſeven weeks; but the fruit which was carried from port was expended about the fifth week. Fortunately however, they fell in with a ſhip laden with lemons. The Admiral ordered a quantity to be purchaſed, ſufficient for the ſafety of his people, during the remainder of his cruize. They returned to port on the 7th of June, without loſing a ſingle man in ſcurvy. The Admiral was pleaſed to order very particular accounts, concerning the adminiſtration and effect of the lemons, to be tranſmitted to me. Some very correct and well-detailed facts on the ſubjects, were in conſequence ſent: they will be found under the article ſcurvy *.——The weather during this cruize

* "*Minotaur, St. Helen's, June 9th,* 1795.

"SIR,

"After reading your treatiſe on naval hoſpitals, I can have little doubt of your making uſe of your utmoſt exertions, to promote any meaſure that can contribute to the health and comfort of our ſeamen. It is from this conſideration that I now lay before you, copies of papers, the originals of which I have juſt tranſmitted to the Lords Commiſſioners of Admiralty; not doubting, if ſeconded by your efforts on this occaſion, but that my ſtatement will produce the deſired effect.

"Whilſt I am on this ſubject, I think it my duty to add, that a few days after we began to ſerve *grog* to the people, the ſcurvy

cruize, as mentioned by Mr. Sibbald, ſurgeon of La Nymphe, "was remarkably fine; there hap- " pened to be, nearly during the whole cruize, a " conſtant

---

ſcurvy made a moſt rapid progreſs; and as this is by no means the firſt time that I have had occaſion to make the ſame obſervation, I am thoroughly convinced, that could it be made convenient to govenrment, to ſerve out a wholeſome genuine wine (and ſuch I apprehend might be found, without much difficulty, or any conſiderable expence) in *lieu* of ſpirits, that many lives might be ſaved, and the naval hoſpitals leſs crowded with ſcorbutic patients; two-thirds of whom are loſt to the ſervice, either by deſertion, or the accumulation of freſh diſeaſes.

I am, SIR, your moſt obedient
humble ſervant,
(Signed) WM. WALDEGRAVE."

To
THOMAS TROTTER, Eſq. &c.

ANSWER.

Charon, June 10th, 1796.

" SIR,

" I am this day honoured with your obliging letter, incloſing Remarks, by the ſurgeons of your ſquadron, on the effects of lemons in the treatment of ſcurvy.—What I have particularly obſerved in theſe communications, is an increaſe of the ſcorbutics, during the uſe of *grog*. This has been long known, but never before ſo clearly aſcertained: but, beſides confirming ſome ideas whch I have entertained of the theory, it leads to much valuable practical improvement *. I ſhall make it my

---

* Vid. Obſervations on Scurvy, ſecond Edition, Longman, London.

"constant east wind, with heavy dews, every "night."

April 17. The squadron under Admiral Colpoys arrived at Spithead, after a month's cruize in the Channel; during which, he had taken La Gloire and La Gentile French frigates.

It has been mentioned, that this squadron was supplied with lemon juice from the Charon, from the idea I at that time entertained that they must soon need it. On their return to port the scurvy prevailed in every ship. But, by confining the administration of the lemon juice to the worst cases, no deaths happened at sea. The frigates, during this general scorbutic taint, did not seem to suffer in proportion to the ships of the line: some very bad cases were, however, sent to the hospital from the Astrea, in which ship Lord Henry

---

my business to put some further queries to the surgeons, on the subject; and on drawing up a summary of the method, and success of treatment, of this singular disease, in the fleet, for the information of the Lords Commissioners of Admiralty, I shall not fail to enforce some regulations, which this occasion has suggested; not a little due to the humane attention which you have paid to the health of the seamen in your squadron.

I have the honour to be, SIR,
Your most obedient
humble Servant,
T. TROTTER.

To
The Hon. Rear-Admiral WALDEGRAVE.

Henry Poulett had ſo handſomely diſtinguiſhed himſelf in the action with one of the frigates.

The Hannibal, one of Admiral Colpoys ſquadron, put into Plymouth, over-run with ſcurvy. This ſhip had not been long in commiſſion; many of her crew were raw landmen, conſequently more liable to be affected. After landing forty men at Plymouth hoſpital, Captain Markham did not find them recover ſo faſt as he wiſhed; and ſeeing that they got few or no vegetables, owing to ſome diſpute with the gardener that had the contract, from pure compaſſion to their diſtreſs, this generous officer went to market, and purchaſed them abundance at his own expence. This prevented the remainder of the Hannibal's ſcorbutics from being ſent to the hoſpital: they were either cured on board, or ſent on ſhore in parties, to the different farm houſes in the neighbourhood, where the country people allowed them to take herbs and vegetables from their gardens, till they recovered their health.

Another ſquadron, of four ſail of the line, arrived from the North Sea, under the command of Rear-Admiral Harvey. Theſe ſhips left Spithead a few days after the arrival of the fleet from the winter cruize. They fared ſtill worſe than thoſe under Admiral Colpoys. The Prince of Wales landed fifty men at Deal hoſpital, five of whom periſhed in the boat; and ſhe brought a number

number ill to Spithead. The Thunderer, one of the ſhips of this ſquadron, returned in perfect health: her crew had lately ſhared prize-money for the St. Jago regiſter ſhip, captured when they were in the Edgar; by this means they had furniſhed themſelves amply, for the cruize, with every delicacy, even to live ſtock. The Ruſſel was one of Admiral Harvey's ſhips, and was affected like the Prince of Wales.

April 20. No effectual change in the victualling department having yet taken place in the fleet, I was under the neceſſity of making further ſtatements on the buſineſs, and thought it beſt to apply through the Port Admiral, to the Lords Commiſſioners of Admiralty; Earl Howe, though ſtill at Portſmouth, and his flag down, was ſo indiſpoſed from gout, that he was no longer in the official ſituation of receiving reports. I had nothing new to relate more than what has already appeared: the diſeaſe was advancing rapidly; the hoſpital was filling with ſcorbutics, from the ſhips at Spithead as well as thoſe that had returned from ſea, and if aſſiſtance did not ſoon arrive, there was danger that the whole fleet might be rendered inactive *.

Their

* The directions which the Admiralty had given, in ſome parts, were not followed with that diſpatch which our accumulating danger claimed. I was therefore induced to write

to

Their Lordſhips were pleaſed to order the freſh beef to be ſerved to the fleet, in the uſual quantity; and the Commiſſioners of ſick and hurt informed me, by letter dated the 29th of April, that they had ſent off, on the 27th, fifteen cheſts of lemons, and the like number of oranges, for Portſmouth, to be diſtributed to the ſhips afflicted with ſcurvy, as I might think proper. They added, that more ſhould be ſent as ſoon as demanded.

Our wiſhes were now gratified. The ſurgeons no longer thought of ſending their men on ſhore; they found the cures quicker accompliſhed under their own care.

At

---

to Sir Peter Parker a ſecond time. After waiting ſome days for their Lordſhips anſwer, Sir Peter's ſecretary told me, that the contractors *could not* get freſh beef, on which account the Admiral had not *thought proper* to tranſmit my letter to their Lordſhips. On informing Earl Howe of this buſineſs, he thought very differently, and by the firſt poſt ſent my letter to the Admiralty. It is neceſſary to ſtate all theſe facts as they happened. There is but one line of conduct to regulate the duty of an officer, *to be faithful to his poſt*; and if misfortunes follow, he cannot be blamed. It will not be diſputed by any one, who conſults the authorities here produced, that the Channel Fleet was kept active by the meaſures I was purſuing, and the judicious practice of the ſurgeons, during this general and alarming calamity. My ſucceſſors, in a ſimilar ſituation, will benefit from the trouble which fell to my ſhare.

At the ſame time the reſident Commiſſioner of the ſick and hurt, received orders from that board, to furniſh the ſcorbutics of the fleet *with as much ſallad as could be procured.*

May 2. The Leviathan, Hannibal, and Swift-ſure, dropped down to St. Helen's, as it was expected, to accompany the Weſt India convoy to a certain latitude, and return. The Hannibal, we have ſaid before, put into Plymouth in great diſtreſs, from a general ſcurvy. But the uſual allowance of beef not being altered at that port, and Capt. Markham having provided his people with abundance of vegetables, his crew were well recovered. This was not the caſe with the Leviathan; I therefore thought proper to ſupply them with lemons, and the expreſſed juice, in quantity for the cure of the diſeaſe, during the ſuppoſed ſhort departure. They had, however, ſealed orders to proceed to the Weſt Indies; and after a tolerable paſſage to Cape Nichola Mole, in St. Domingo, they did not loſe a man. Many cures were effected by the lemon; but a general taint now prevailed in all theſe ſhips, to a dangerous degree, which had been gaining ground all the paſſage. So ſmall a ſpace of the country being in poſſeſſion of the Britiſh troops round the Mole, that relief for the ſhips could not be obtained in that diſtrict. The active humanity of

of Captain Duckworth, however, ſoon found reſources. He freighted a ſmall veſſel to the iſland of Cuba, and received fruit and vegetables, from which his people were reſtored to health.

In this month the ſcurvy appeared in the Royal George, to the number of thirty caſes; and Mr. Murray informed me, that a few were now ſeized in the Queen Charlotte, and a general diſpoſition towards it in all. Mr. Browne, of the Queen, tells me in his report for this month, that a general tendency to ſcurvy prevailed among the crew. There is no ſaying what were the reaſons that retarded the approach of the diſeaſe in theſe ſhips. The only circumſtance of note is, that they had not been at ſea while the others had.*

May 26. The Royal Sovereign, Mars, Triumph, Bellerophon, Brunſwick, with the Phæton and Pallas frigates, ſailed under the command of Vice-admiral Cornwallis. The Mars, a new commiſſioned ſhip from the Nore, was the only one in this ſquadron free from ſcurvy when they went to ſea. The others had ſhared of the lemons, and

* "Many of the ſhip's company are ſlightly affected with ſcurvy, but not ſo far as to prevent them from doing duty: the above number (twenty-four in ſcurvy) is only ſuch as are incapable of doing duty from that diſeaſe.

(Signed)

Sans Pareil, May 1796. CHARLES BOWCARD, Surgeon."

and what ſallad was ſent us. But as the general taint among the crews had not been corrected, I ſupplied them from the Charon with a large allowance of fruit, and a quantity of juice in kegs. In the Triumph alone, as appears from Mr. Carthy's report for the month of June, one hundred and one cures were accompliſhed at ſea! The condition of the Royal Sovereign and Brunſwick, was not much better than the Triumph.

This cruize was memorable, for the famous retreat of the ſmall ſquadron, on the 19th of June, from the enemy's fleet of twenty-nine ſail; by courage and ſeamanſhip, that held up the naval character of Britain to the higheſt degree of admiration. It is only rivalled in the annals of the world, by a ſimilar manœuvre, during the late war, under the ſame officer; or to go farther back, it may be juſtly compared to the retreat of the ten thouſand under Xenophon!

Admiral Cornwallis came to Plymouth on the 24th of June, to refit. He ſailed early in July, to relieve ſome of Lord Bridport's ſhips, off Belliſle.

During the month of May, all the ſhips which returned before, from different cruizes, to Spithead, were ſtill increaſing in the number of ſcorbutics. The London had, according to Mr. Smith's report,

port, ninety-nine under cure.* The Valiant, according to Dr. Thompſon, ſtill more; and the Coloſſus, according to Mr. Ballentyne's, was ſixty-eight. In the Barfleur, ſixty; Prince of Wales, eighty; Robuſt, fifty; Ruſſel, ſixty-four; and the others more or leſs affected.

The ſallad, which I had repreſented in my letter to the Admiralty, as the beſt vegetables for our relief, was ſupplied in too ſmall quantity to eradicate the diſeaſe. I wanted it to be given in large allowance to the different meſſes of the ſeamen; and that the freſh beef broth ſhould be full of greens, or other pot-herbs. The lemons we could only conſider for the cure. I demanded, therefore, five thouſand pounds for daily conſumption: and walked over the markets and gardens, to inform myſelf if this could be obtained. Our ſupply, hitherto, had ſeldom exceeded *one hundred pounds* of lettuces, young onions, and muſtard. †

* "The ſcurvy is ſtill prevalent among the ſhip's company, in a violent degree. There is ſcarce a day but two or three are added to the ſick liſt, and unfit for duty; but ſoon yielding to the lemons, oranges, and ſallading, now ſupplied.

(Signed)

London, May 1795. JOHN SMITH, Surgeon."

† The reader may ſmile at the idea of a Phyſician to a Fleet, attending the ſtalls at a vegetable market, or preambulating

Admiral Lord Bridport came to Portſmouth about this time, to take the command of fourteen ſail of the line. He had heard of the general ſcurvy, but ſuppoſed, from the orders given ſome time ago, by the Admiralty, that it was effectually overcome. His Lordſhip received my opinion on the ſubject with much attention, and entered earneſtly into my manner of curing it. He deſired the reſident Commiſſioner of ſick and wounded, to order the quantity which I deemed neceſſary, whether it could be procured at Portſmouth, Goſport, or elſewhere. It was of little moment whether the ſallad ought to be conſidered as a part of victualling, or medicine; the public ſervice demanded inſtant relief. Had it been in my power to command it, it ſhould have been brought from the Land's-end, in Cornwall, before the fleet had ſo long groaned under the affliction. We have heard of a Miniſter * ordering a train of ordnance acroſs the country, from Woolwich to Portſmouth, to ſave time; in this manner would I have wheeled the product of every diſtant garden to Portſmouth, leſt the tooth of a ſailor

* The firſt Lord Chatham.

K ſhould

---

bulating the country, to calculate the produce: but it never appeared to me below the dignity of the profeſſion; nor did I conſider it a mean taſk to ſerve the ſallad with my own hands, from the Charon's quarter-deck.

ſhould drop from his gums, by a tardy conveyance of his deliverer.*

Deliberat Roma, perit Sagantum.

June 1. We now received upwards of four thouſand weight of ſallad, daily. It was given in greateſt quantity to the ſhips moſt affected: theſe were, the London, Prince of Wales, Valiant, Coloſſus,

* TO THE COMMISSIONERS OF SICK AND WOUNDED SEAMEN.

Spithead, May 24, 1795.

GENTLEMEN,

I am duly honoured with your letter of the 22d inſtant: And beg leave to remark, that we, on the ſpot, are by no means of opinion that any ſupply of vegetables, yet ordered for the uſe of the Fleet, is likely to prevent the progreſs of ſcurvy among the ſeamen. For five days paſt, ſomething above one hundred weight of ſallad has been ſent by Dr. Johnſtone to the ſcorbutics, and diſtributed at the rate of *four oz. per man*. It appears that ſeven hundred caſes have been cured by the fruit alone; not including the cures in ſhips at ſea; and as freſh caſes occur, they will be eaſily overcome, while we poſſeſs the lemon and orange. But means of prevention muſt be extended to *every man*, otherwiſe we can promiſe no ſecurity. The ſquadron of Rear-Admiral Colpoys returned to port with three hundred ill of ſcurvy. The Prince of Wales and Ruſſel, under Rear-Admiral Harvey, have been equal ſufferers; and had not the ſhips under Rear-Admiral Waldegrave, received fourteen thouſand lemons and oranges, when they ſailed, their ſituation muſt have been ſtill worſe. For theſe reaſons I have ſent to the ſquadron about to ſail under Vice-Admiral Cornwallis, what fruit we could ſpare.

The

Coloſſus, Robuſt, and Ruſſel. But the Royal George was becoming as bad as any of them, according to Dr. Higgin's report; ſhe was therefore conſidered, in allowance, with the others.

June 10. Since the large allowance of ſallad was ſerved, the ſcurvy has continued to decline. The ſudden change is wonderful. The ſquadron being

---

The gardens in this neighbourhood, I have found from my own inquiries, can ſupply vegetables, equal to our wants, at a very moderate price; young onions and raddiſhes have been ſold at this market for a halfpenny per bunch, for the laſt three weeks; theſe, with what lettuces, &c. may be procured, and ſerved in certain proportions, to the *meſſes* of ſeamen, I am apt to think, would effectually correct this ſcorbutic taint in the ſpace of a fortnight. Not leſs than ten or twelve cart-load of vegetables were yeſterday morning brought to Portſmouth market, beſides the quantity ſent to Portſea, Goſport, and what might be got ſtill cheaper in the Iſle of Wight.

The Channel Fleet, being now ordered to aſſemble, I conſider it my duty to give you this information, leſt the Lords Commiſſioners of Admiralty ſhould expect our afflictions to be remedied through the directions of your Board.

I have the honour to be,
GENTLEMEN,
Your moſt obedient,
and very humble ſervant,
T. TROTTER.

now ordered to ſea, the health of the men was conſidered equal to the expected cruize; but it could not be ſuppoſed ſecure againſt the effects of a ſea diet, where vegetables and freſh beef had no ſhare. The Surgeons were ſerved from the Charon with boxes of lemons, in proportion to the progreſs of ſcurvy lately marked among the people, and thirty gallons of lemon-juice, to be uſed when the fruit was expended. I reſerved two hundred and fifty gallons in the hoſpital ſhip, leſt any unforeſeen length of time, or exigencies of ſervice, might keep the fleet at ſea beyond what we foreſaw.

I will give the condition of the Coloſſus, in the beginning of this cruize, as an example of the ſtate of the fleet: the Surgeons of the whole having confirmed what Mr. Ballentyne ſo emphatically expreſſes in his remarks. It appears that Mr. Ballentyne cured no fewer than one hundred and twenty, from the 1ſt to the 12th of June *, while the large allowance of ſallad was iſſued.

* "State

* "State of HEALTH, on board his Majeſty's Ship Coloſſus, from the 1ſt to the 30th of June, 1795.

DISEASES.	Since laſt Report, Taken ill.	Sent to the Hoſpital.	Recovered.	Dead.	Preſent Sick Liſt.
Fever - - -	3	2	—	—	1
Flux - - -	1	—	—	—	1
Catarrhal Complaints	6	—	9	—	1
Scurvy - -	60	—	120		
Ulcers - - -	1	—	—	—	3
Venereal Complaints	4	—	2	—	4
Wounded Men, &c. June 23.	53	2	29	—	34
Total - - -	128	4	161	—	44

REMARKS.

"The above ſtatement is a proof of the good effects of fruit and vegetables in the cure, as well as the prevention of the ſcurvy. I have not had a patient in the liſt, for ſcorbutic ſymptoms, ſince the fleet left Spithead.

(Signed)

Coloſſus, at Sea, June 30, 1795. J. BALLENTYNE, Surgeon."

During the prevalence of this general diſeaſe in the fleet, after the liberal allowance of fruit came, and the quantity of ſallad increaſed, no ſeaman was known to expreſs the leaſt regret at being kept on board for the cure: on the contrary, they were not a little delighted with the novelty of the buſineſs, and refinement in diet from an Admiralty order: the whole being ſerved from the Charon, ſhe was called the *Doctor's garden.*

From the middle of March to the 12th of June, upon comparing notes and remarks from the reports of ſurgeons, it appears that not leſs than three thouſand caſes, unfit for duty, had been cured, on board, by the fruit, or the preſerved juice. About twice that number, with ſlighter ſymptoms, were relieved by the fruit, the juice, and the ſallad. Thus were thoſe men kept ready for ſervice, our ſhips companies preſerved entire, and deſertion, and bad habits often contracted at hoſpitals, prevented.

June 12. This day the ſquadron under Admiral Lord Bridport ſailed; conſiſting of the following ſhips: Royal George, Queen Charlotte, Queen, Prince of Wales, London, Prince George, Prince, Barfleur, Sans Pareil, Valiant, Coloſſus, Irreſiſtible, Ruſſel, Orion, Frigates, &c. with the Charon hoſpital ſhip.

June 23.

June 23. The ſquadron captured three ſail of the enemy's line, off the Iſle of Groa, with very little loſs of men on our ſide.

SHIPS TAKEN.

Le Tigre - - -	74 guns.
L'Alexander -	74
Le Formidable	74

The ſervice of our ſquadron, it now appeared, was to protect the expedition under the command of Sir J. B. Warren, againſt Quiberon. The Peninſula was ſoon taken poſſeſſion of; but quickly retaken by the French, and the emigrant troops that were landed, to the number of five thouſand men, were either put to the ſword, or put to death by military execution, afterwards!

After the victory on the 1ſt of June, 1794, as mentioned before, many of our ſhips received a contagious fever from the French priſoners. On this occaſion I did not find that any particular ſickneſs prevailed in the captured ſhips; certainly nothing of the kind was communicated to our people.

In the early part of the cruize, a low fever appeared in the Prince. It was not attended with much mortality, nor was there any thing peculiar in its nature. Mr. Folds treated it with antimonials, in the firſt ſta and then gave bark, wine, and opium.

 July 1.

July 1. Two men in ſmall-pox, were ſent to the hoſpital ſhip, from the Orion. The man firſt affected, was convaleſcent, and had been near three weeks ill on board, by which means others were infected. The infection was brought to the Orion by a Quarter Maſter, from Haſlar Hoſpital, at the time the ſhip ſailed from Spithead.

July 6. This day, eleven men, ill of typhus fever, and ten in the ſmall-pox, were received from the Orion. Two of the fever patients, had been in a ſtate of delirium from the beginning; and the whole of them had a very bad appearance. This fever evidently ſpread from contagion. I wrote to Sir James Sumaurez on the ſubject; who requeſted me to come on board the Orion. Upon having the whole of the ſick, who were able to walk, upon deck, I found ſeveral in a ſtate of convaleſcence, that had been ill of the fever. They were men lately entered, for the bounty given by the counties, according to the late act of Parliament. The infection had been acquired on board the Royal William receiving-ſhip, at Spithead; they told me, in the preſence of their officers, that they conceived their diſeaſes to have been cauſed by ſleeping on the deck, the crowded ſtate of that ſhip not allowing them room to hang up a hammock.

Every perſon on board with the fever, being now moved to the Charon, Sir James Sumaurez ordered

ordered a ſtrict look out to be kept at others that might complain: and the Admiral gave inſtructions that the Orion ſhould ſtay near the hoſpital ſhip, that the infected might be ſeparated on the firſt ſymptoms of indiſpoſition.

Sir James Sumaurez had taken the command of the Orion, with a raw ſhip's company, only a day before we went to ſea. The people's cloaths were now ordered to be aired abroad with their beds; their perſons to be cleaned, and ſlops ſerved to thoſe in want. The ſhip was pure and clean in every corner; the common proceſs of fires, &c. below, was attended to; and no freſh caſe of fever appeared afterwards.

Some of theſe patients had ſymptoms of conſiderable malignity; and three of the number died on the fifth day from being ſeized. No nurſe or attendant in our hoſpital was infected: I attributed this ſolely to the extreme exact attention to cleanlineſs, both in the perſons of the ſick, their body, linen, and bedding: a boiler with water was kept in conſtant readineſs to waſh every article of cloathing as ſoon as it came from the beds of the ſick, and a tub ſtood by for this purpoſe. Not even a handkerchief or night-cap was laid away till waſhed and aired.

Only one patient died in the ſmall-pox; which were of a milder kind than uſually met with in

adult

adult subjects. As it was likely that the disease must now extend itself to every one on board the Orion, who had never been infected, people of this description, to the number of fifteen, were called to the quarter deck, and admonished by the captain and myself, to submit to inoculation, as an easy and safe mode of getting over the disease. Some of their prejudices, however, were not easily overcome; they were of the religious kind, and they did not consider it right to bring a disorder upon themselves. We combated this objection with the usual arguments, that Providence had put into our power the means of escaping a dreadful distemper by a trifling operation, and that it was impious in human beings to neglect it. They felt our advice more sensibly when they were told, that we considered it our duty to instruct them for their welfare, and that our only motive was their safety, for they were not to be compelled to undergo inoculation; but act as they pleased. I added, that two or three general inoculations of seamen had taken place on board the Charon, not one of whom had ever been confined an hour to bed. Ten of the fifteen consented to be inoculated, and had the disease in its mildest degree; the other five were doubtful of having had it in their infancy, and were not infected.*

* At this time four men and boys were inoculated in the Charon, and did well.

July

July 9th. This day the wounded men of the Fleet, to the number of forty-five, were moved from their own ſhips to the Charon; among them was Captain Grindall, of the Irreſiſtible, who was ſeverely wounded in the breaſt, and ſhoulder, and arm.—This evening we parted with the Fleet, to proceed to England, under convoy of the Orion.

On this morning the ſquadron under Admiral Cornwallis joined Lord Bridport; conſiſting of the Royal Sovereign, Formidable, Triumph, Bellerophon, Invincible, and Brunſwick: in conſequence of this relief, the Prince of Wales, Queen Charlotte, Ruſſel, and Coloſſus, returned home: the Prince and Barfleur parted a few days before with the prizes.

15th. This day put into Weymouth, and landed Captain Grindall at his own houſe; the harbour was lined by the inhabitants, and the Captain was heartily cheered on ſhore.

We purchaſed ſtock, fruit, and other refreſhments for the ſick and wounded.

16th. Arrived at Spithead, and landed the ſick and wounded at Haſlar.

The weather, during the early part of this cruize, was cold, with eaſterly winds; but very fine at the time we left the Fleet.

It

It appeared that a ſeaman belonging to the Queen Charlotte, who aſſiſted the wounded men from the boat into the lower deck of the hoſpital ſhip, at ſea, was ſoon after ſeized with the ſmall-pox. The Orion's people lay near the port where he entered. The eruption appeared on this man the day after the Queen Charlotte arrived at Spithead: he was ſent on ſhore immediately, and the diſeaſe ſpread no farther.

Auguſt 1ſt. The Charon was ordered to return to the Fleet. We were now ſupplied with a quantity of ſtock, vegetables, porter, &c. to be diſtributed to the ſhips for the uſe of the ſick; articles which the length of the cruize, and the former ſufferings of the ſeamen in ſcurvy, appeared to me to render neceſſary at ſea.

Auguſt 5th. The Charon ſailed under the protection of the Thunderer.

Auguſt 15th. Joined the Fleet off Groa.— This day I was employed in viſiting the ſhips, and diſtributing the ſtock and other refreſhments from the Charon.

State of HEALTH in his Majeſty's Ships under the Command of ADMIRAL LORD BRIDPORT, Auguſt 17, 1795.

SHIPS.	Number on the Sick Liſt.	PREVAILING DISEASES.
Royal George -	45	Scurvy.
Sans Pareil - -	36	Scurvy, increaſing rapidly.
Invincible - -	52	A low Fever and Scurvy.*
Valiant - - -	35	Obſtinate Venereal Complaints, combined with Scurvy.
Formidable - -	22	Bad ulcers: Scurvy beginning.
Irreſiſtible - -	35	Scurvy, increaſing faſt.
London - - -	41	Slight Scurvies.
Brunſwick - -	30	Scurvy, increaſing.
Royal Sovereign	30	Inveterate Scurvy.—Eighty with ſymptoms, but doing duty.
Queen - - -	43	Scurvy and obſtinate Venereal Complaints.
Triumph - -	29	None.
Prince George -	53	Scurvy, increaſing faſt.—Some inveterate caſes.
Bellerophon - -	24	Scurvy, beginning.

P. S. The Scurvy is alſo appearing in the Frigates, particularly in La Nymphe and the Thalia.

* Vide Mr. Kenning's Remarks on this Fever, under the article Typhus.

In the above report to Lord Bridport, the principal cauſe for animadverſion was the re-appearance of the ſcurvy. It was only for the four-

teen

teen days preceding our return to the Fleet, that the diſeaſe had ſhown itſelf. The weather had for ſix weeks paſt been mild and warm. But the ſtation of the Fleet, which was off Belleiſle, or always within a few leagues of it, left the minds of the ſeamen in a ſtate of inaction. The fate of the emigrants that were ſlaughtered on the peninſula of Quiberon, and the ſubſequent execution of the remainder, wrung every ſoul with pity and horror. I think it neceſſary to mention all theſe circumſtances, as they might have a ſhare in diſpoſing the habits of our people to the diſeaſe in queſtion.

It was now that the ſurgeons felt the value of the repeated ſupplies of lemon juice; and in this trip to the Fleet we had renewed our ſtock of it. The ſhips that were in want of other neceſſaries for the ſick, received them from the Charon, and I recommended every where a ſupper of ſowens, with ſugar and wine, for the ſcorbutics. The mutton and vegetables were made into broth, and while they laſted our people fared ſumptuouſly.

Although the ſcurvy had been checked from the large quantity of ſallad ſerved for the laſt ten days at Spithead, yet we were not ſo ſecure as to think it would not return during a long cruize. It is to be remembered, that moſt of the ſhips had now been ten weeks at ſea. Had the ſallad

been given ſooner, or continued to be ſerved longer, we ſhould not have had ſo quick a return of the diſeaſe. There was alſo, at this time, on my part, ſome reaſon for regret, that the improvements in diet, which I had ſuggeſted ſo early as the month of March, had not been complied with. Even the molaſſes were neglected to be ſent, when we firſt ſailed; they would have made the oatmeal gruel palatable, and it is a groſs miſtake to think that ſeamen will take it without this addition: it is even cruel to think that they ought. There was another circumſtance to be conſidered, the water was now growing ſcarce, and as there ſeemed no proſpect of the ſhips being ſoon relieved, it was put to allowance.

20th. In this ſituation the ſick liſts of the different ſhips continued to vary and fluctuate; as a few ſcorbutics were cured, an increaſed number came into the liſt. The lemon juice retained its powers, and was every where effectual. Mr. Moffat, ſurgeon of the Aquilon, mentions in his report, that what he had kept for a length of time ſtill cured the diſeaſe. This was part of the ſupply granted in September 1794; ſo that it had been near two years expreſſed from the fruit.*

This

* "The ſcorbutic complaints have uniformly yielded to lemon juice, notwithſtanding its having been on board for near fifteen months, and, conſequently, conſiderably impaired in its virtues.

(Signed)

Aquilon, July 1794. THOMAS MOFFAT, Surgeon."

This is an incontrovertible fact, that this valuable article may be preserved at sea for any voyage, and secure health to a ship's company, when every thing else shall fail.

The sick and infirm of the ships in the squadron were sent on board the Charon. They are chiefly chronic complaints. Eight cases of bad ulcers in the leg were sent from the Formidable, with a scorbutic appearance. No other case of scurvy has been received.

August 29th. The scurvy is still gaining ground. The remainder of our lemon juice has been distributed to the ships, and a hundred gallons, in reserve, are sent on board the Royal George. The London, and Prince George, have been dispatched to Plymouth, their water being nearly out.

Mr. Milligan, surgeon of the Megœra fireship, being moved into the Charon, the treatment of a number of scorbutics devolved on Captain Dickson and his officers. The disease went over the whole ship's company. But the cure of scurvy was now grown so familiar to our officers, that Captain Dickson prescribed the lemon juice to his people with the usual success, and recovered many.

This evening the Charon and Crescent frigate parted from the Fleet for England.

September 3d. Arrived at Spithead, and landed the sick at Haslar.

The

The Robuſt, which ſhip had ſailed in June with Sir J. B. Warren, remained for three months with that ſquadron in Quiberon Bay, and was now at Spithead. As long as the fruit and lemon juice were ſerved, the ſcurvy was kept under; but theſe being done in July, ſhe landed ſixty-nine at Haſlar, in the laſt ſtage of the diſeaſe. Three died before the arrival in port*.

Admiral Harvey having ſailed on the 31ſt of Auguſt, with the Prince of Wales, Queen Charlotte, Prince, Orion, Mars, Minotaur, Ruſſel, Theſeus, and Tremendous, to relieve the ſquadron under Lord Bridport, on the 19th of September his Lordſhip came to Spithead.

September 20th. The ſhips of this ſquadron had on board, at their arrival, the following number of ſcorbutic patients; who were reported to me

* "Two of the patients that died in ſcurvy had lately been much reduced by the flux; the other complained only two days before he died; which, I confeſs, was then rather unexpected. The caſk of lemon juice you were ſo kind to give me, on the day we ſailed from Spithead, was expended laſt month. The Captain Thornborough gave me a caſk of porter, which I thought was ſerviceable; but notwithſtanding that, and every thing I could poſſibly procure, had we remained out ten days longer, our condition would have been truly diſtreſſing, as moſt of the ſcorbutic patients were in the *laſt ſtage* of that dreadful diſeaſe.

(Signed) JAMES TURKINGTON, Surgeon."

Robuſt, Aug. 1795.

L

me by the ſurgeons, or ſurgeons' mates, at a general viſit.

Royal George - - -	160
Royal Sovereign - - -	250
Queen - - - - - -	78
Sans Pareil - - - -	100
Invincible - - - - -	260
Valiant - - - - - -	100*
Triumph - - - - -	30
Bellerophon - - - -	30
Pallas - - - - - -	17
Megœra - - - - -	60
	1,085

The Formidable put into Plymouth. Of the number mentioned above, one hundred and ſeventy of the worſt were ſent to the hoſpital.

September 22d. The Commiſſioners of ſick and wounded having informed me at this time, when fitting the Charon for another trip to Quiberon, that their ſtock of lemon juice was low, and no more to be procured, I directed the ſurgeon of the Charon to purchaſe fifty buſhels of apples for the uſe of Lord Bridport's ſhips. The Royal

* Dr. Thompſon aſſures me, that not one of the Valiant's people that complained of ſcurvy during the late cruize, were among the number who had been ill at Spithead in April and May, and ſhared ſo abundantly of the lemons and ſallad.

Sovereign

Sovereign having ſent no men to the hoſpital, a large allowance was given to that ſhip. An extra allowance of vegetables was put into the freſh beef broth.

September 29th. The quantity of apples was repeated. Even at this time there are ſcarce any viſible remains of ſcurvy in the Fleet. The apples were very acceptable; the more ſo, becauſe every ſailor had been long uſed to the lemon juice.

The Prince George arrived from Plymouth laſt week, in perfect health, to receive the flag of Rear-Admiral Chriſtian, intended for the Weſt Indies. Mr. Harris, the ſurgeon, informs me, that he had cured all his ſcorbutics on board, but four that were in a bad condition. This he was enabled to do through the bounty of Mr. Unwin, the purſer, who had ſupplied the ſhip with vegetables in great abundance. This gentleman reaſoned like a man of feeling. 'He was in the receipt of a handſome income, he ſaid, by victualling the ſhip's company, and thought he could not act juſtly if he forgot them in their diſtreſs.' May this example, in ſimilar ſituations, be imitated! Mr. Sheppard, purſer of the Vengeance, ſupplied the ſcorbutics of that ſhip in this manner; by which means I was enabled to cure them all on board *.

* Vide Medical and Chemical Eſſays; Jordan, London, 1795.

The

The London continued inactive at Plymouth; (her purſer being only acting for the time, had it not in his power to increaſe the vegetables;) and landed upwards of a hundred men at the hoſpital, ſome of whom were never returned. For ſimilar reaſons, the Robuſt ſailed on the end of this month to join Admiral Harvey, and left ſixty of her ſcorbutic people at Haſlar.

September 30th. The Charon being again ordered to proceed to the ſquadron off Belleiſle, a quantity of ſtock, apples, vegetables, porter, &c. has been received on board, for the uſe of the ſick in their own ſhips, as well as in our hoſpital.

In the mean time the Lords Commiſſioners of Admiralty having obſerved the good effects of ſupplying the ſeamen with refreſhments, had ordered bullocks and ſheep to be ſent from Cork and Plymouth, with potatoes, cabbages, and onions, for Admiral Harvey's ſhips.

September 30th. This day Earl Spencer, accompanied by Lord H. Seymour and Mr. Pybus, lords of admiralty, honoured the Charon hoſpital ſhip with a viſit.

Next day their Lordſhips ſurveyed Haſlar Hoſpital, and marked out the ground for erecting the houſes for a governor, lieutenants, and other officers; about to be added to this inſtitution, in conſequence of a general inquiry, by two flag officers and

and two captains of the Fleet, made in March 1794, at my repreſentation.

October 3d. The hoſpital ſhip ſailed from St. Helen's.

October 6th. Joined the ſquadron under Rear-Admiral Harvey off Belleiſle; and diſtributed the ſtock, fruit, and vegetables, &c. among the ſhips.

The ſhips were all healthy.—The weather hitherto had been remarkably fine. During a ſquall of thunder and rain a few days before, the lightning had ſhattered the mizen-maſt of the Ruſſel, and killed the firſt lieutenant, while ſitting at the wardroom table. She went to England immediately.

Received a man from the Marlborough in ſmall-pox: care had been taken to ſeparate him from the ſhip's company, and the diſeaſe, Mr. Kent informed me, ſpread no farther.

October 9th. The ſquadron anchored in Quiberon bay, between the little iſlands Hedic and Houat, during a hard gale of wind and thick weather from the weſtward. In this bay we found part of Sir John Borlaſe Warren's ſquadron, and a large fleet of tranſports and victuallers; the other frigates had ſailed on an expedition againſt Iſle Dieu.

October 18th. Received a patient in ſmall-pox from the Queen Charlotte. This ſhip had now been nine weeks at ſea, and there could be no ſuſpicion of the infection having been received directly from any perſon under the diſeaſe. Mr. Murray, therefore, accounted for it in this manner: The huſband of one of our nurſes was a ſoldier on board the Queen Charlotte: and while the patient from the Marlborough in ſmall-pox lay in the hoſpital, this woman had attended him, and carried the infection when ſhe viſited her huſband about a week before the man ſickened. The diſeaſe was of the confluent kind; he died on the fourth day. This fact ought to make us very circumſpect wherever ſmall-pox or other contagious diſeaſes are raging.

The ſick of the ſquadron, to the number of fifty, were ſent to the hoſpital ſhip; which included a few from the ſhips under Sir J. B. Warren. They are chiefly diſeaſes of the ſeaſon, rheumatiſms, pectoral complaints, and ſome fluxes from the Standard. The ſeamen on board the tranſports have ſuffered from the flux: many have periſhed, as much from the want of diet and neceſſaries, as medical aſſiſtance. Some have been relieved from our hoſpital by the Admiral's order.

From this date to the 3d of November was almoſt a continued gale of wind.

§ Nov. 3.

Nov. 3. The wind coming to N. N. E. the ſquadron ſailed from Quiberon bay. Next morning the tranſports got under weigh, and followed us.

Nov. 7. Received the remainder of the ſick from the ſhips; which makes the whole on board ſixty-eight. Parted with Admiral Harvey, in company with two frigates and a fleet of tranſports, with troops.—Remnants of Pharſalia and mighty battles fought in vain!

Nov. 10. Put into Scilly, the wind blowing ſtrong from the eaſtward.

Nov. 11. Mr. Millegan employed in procuring ſtock and vegetables for the ſick in the hoſpital.

Nov. 12. Sailed from St. Mary's Sound, Scilly.

Nov. 16. Arrived at Spithead, and landed the ſick at Haſlar. The Charon was ordered to receive troops, and prepare for the Weſt Indies, under R. A. Chriſtian. The medical ſtaff was ordered to another ſhip.

—1796.—

Jan. 2. This day the ſquadron under Rear-Admiral Harvey arrived at Spithead, after an abſcence of eighteen weeks from England. On board the ſhips came paſſengers 3,000 ſoldiers, embarked from Iſle Dieu, when evacuated.

This ſquadron had been repeatedly ſupplied with refreſhments, from Plymouth and Cork,

 while

while on the coaſt of France. The ſcurvy appeared in a number of caſes, in all the ſhips, but was quickly cured by the lemon juice. Some deaths happened from the dyſentery: this complaint probably originated from the ſcorbutic habit, with which it is ſo often combined. But ſome of the ſurgeons, not without reaſon, ſuſpected that it was cauſed by bad water obtained from the ſmall iſlands in Quiberon Bay. The wet weather might however produce it, with the cold of the ſeaſon, without any other cauſe.

Jan. 10. The above ſquadron, with five ſail of the line lately returned from ſea, under Vice-Admiral Cornwallis, were ordered to be ſupplied with vegetables, beſides the allowance of the purſers.

Feb. 1. No ſickneſs of any kind in the ſhips of the Fleet.

The winter, hitherto, has been free of froſt; but gales of wind from S. W. with rain ſtill continue.

April. A general order has been given, from Admiralty, in conſequence of a recent application from me, to ſupply every ſhip and ſquadron of the Fleet with the under-mentioned allowance of vegetables, for the firſt fortnight after returning from ſea on meat days; which is at the rate of four days in the week, for mixing with the broth; it has been recommended to diſtribute the onions

to

to the messes, that the seamen may use them as they please:

For every hundred men of the complement, and in proportion,

Cabbages or greens, in season -	50 lbs.
Onions - - - -	10 lbs.

N. B. Other vegetables are to be substituted by the Agent Victualler, when the above mentioned, cannot be procured.

April 14. An easterly wind has prevailed for some weeks: the weather cold, but not productive of any disease in our ships.

The duty of the Fleet being now done by small squadrons, and from the liberal allowance of vegetables to the seamen on returning from a cruize, we may date the extinction of the scurvy.

June 26. This day I was ordered by Vice-Admiral Colpoys, to visit the Niger frigate, where a contagious fever had lately made its appearance.

It first appeared among the marines, but latterly affected the seamen. Its origin could not be exactly traced; but probably it was brought from a small vessel the Niger had captured on the coast of France, which had just landed some soldiers at Bayonne from Brest.

In fourteen days from the time this fever was first detected, forty-four people were sent on shore. This ship being under excellent disci-

pline,

pline, I did not deſpair of ſeeing it quickly ſubdued; and the caſes that were ſent for the laſt four days were very ſlight indeed *. None died.

July

* "This fever made its appearance by vomiting and head-ach, which in ſome caſes was ſoon followed by delirium. In others delirium was the firſt ſymptom.

June 19. Two marines complained: next morning they were ſent to the hoſpital. The ſhip was waſhed, aired with windſails, ſtoves placed in different places: cloathing and bedding all expoſed to the air, &c.

21. Two more marines ſent to the hoſpital. Fumigated with tobacco.

22. White-waſhed the ſhip, aired the cloathing, great part of which, with part of the bedding, waſhed this morning.

23. Four men ſent to the hoſpital; two of them marines. Fumigated with gun-powder.

24. Five men ſent to the hoſpital; four of them marines. Bedding, &c. aired. Fumigated with tar. Wine ſerved from to-day till the 30th.

25. Eleven men ſent to the hoſpital, five of them marines. Fumigated with tobacco.

26. Nine men ſent to the hoſpital. Fumigated with tobacco; cloathing and beds aired every day *.

27. Fumigated with charcoal and brimſtone. No perſon complained till after fumigation, when two men who went immediately below after the tarpaulins were unlaid, complained of head-ach, one was delirious: they were immediately ſent on ſhore.

* Theſe nine men were examined by me; the degree of ſtupor in ſome of them was conſiderable, with that peculiar look which indicates fatuity or imbecility of mind. I did not think any of them in danger. *T. T.*

28. Five

July 20. Mr. Burd ſurgeon of the Niger, informs me, that ſeven of his men returned from Haſlar, have relapſed. The greater part of the cloaths of theſe people having been ſent on board unwaſhed

---

28. Five men complained in the night, very ſlightly affected.

29. Fumigated.

30. Five men ſent to the hoſpital.

July 1. Fumigated with charcoal in the morning, and nitrous gas in the evening.

2. Every man was ordered below; the ſcuttles cloſe ſhut, tarpaulins laid over, &c. for half an hour, during which time, the nitrous gas was diſſipated through the ſhip, according to the directions given in Dr. Smyth's Pamphlet. Very ſoon after it was begun to be uſed, a number of men were affected with coughing; and before the half-hour was expired, the coughing became more general, and in many attended with head-ach, which did not leave them till after walking the deck in the free air for a conſiderable time.

July 3. Doctor Smyth's proceſs was repeated, and attended with the ſame effects as yeſterday: which in my opinion, from the irritation produced in the lungs, is a proof that it is in ſome degree unfavourable to reſpiration. When it was uſed after the fumigation with charcoal and brimſtone, it ſomewhat removed the diſagreeable ſmell produced by that proceſs."—*Extract from* Mr. BURD's *Letter, tranſmitted for the information of Admiralty, by Capt. Foote.*

Niger, July 8th, 1796.

On the 27th, it was remarked that the attack of this fever became ſo ſlight as no longer to make it an object of much attention

unwaſhed from the hoſpital, Captain Foote thought it proper that they ſhould be cleaned immediately. The men therefore roſe early to do this, and were ſoon after ſeized with convulſions and fever. It is doubtful with me whether this relapſe ought to be attributed to ſleeping again in beds or cloaths not thoroughly purified; or to the cold they might experience on riſing ſo ſoon. It is however a certain proof, that it is an improper cuſtom not to waſh every piece of cloathing belonging to the ſeamen, while at an hoſpital.

Aug. 17. A ſquadron of five ſail of the line arrived at Spithead, after a cruize of thirteen weeks, off the Weſtern Iſlands, under the command

---

attention. The ſeaſon of the year being favourable, I look upon the ſpeedy extinction to have been accompliſhed ſolely by the timely ſeparation; the other methods practiſed, are nothing more than the routine of duty and cleanlineſs in a well-ordered ſhip.

The coughing and head-ach are the common effects of air being reſpired that is impure, and not ſufficiently abounding with *oxygene*; they were therefore owing to the deficient ſtimulus of the atmoſphere, and diſappeared by going on deck, where the common air had a larger portion of *vital air*. The charcoal and ſulphur were ordered to be tried by Dr. Johnſtone, the reſident Commiſſioner of ſick and hurt; but theſe had no advantage over the gun-powder, which Captain Foote uſed. They both give out ſulphurous gas: but I conſider them both hurtful, not merely paſſive, but in direct oppoſition to the purpoſes of ventilation. See the article CONTAGION.

T. T.

mand of Rear-Admiral Lord H. Seymour. All of theſe ſhips ſuffered more or leſs from ſcurvy, during their time at ſea, although his Lordſhip ordered them to be ſupplied with ſome refreſhments from the iſlands. The Theſeus ſailed with a diſpoſition to the diſeaſe among her people, owing to her being much in the Channel before; and Mr. Snipe, with infinite trouble on his part, kept it under by the citric acid, and a quantity of pickles which he had previouſly prepared with his own hands in harbour. Twenty four caſes unable to do duty occurred in the Juſte, and were cured by Mr. Kenning in his uſual way.

The taint of ſcurvy prevailed ſtill more in the Triumph. She had been much at ſea in the early part of the ſpring; and Mr. Moffat in his report, remarks, that "the ſcorbutic caſes, as uſual, yielded to the lemon juice in every inſtance; and "I may venture to aſſert, that had there not "been ſo plentiful a ſupply of it, one third of "the ſhip's company, at our return would have "been laid up with ſcurvy. So general was the "tendency to it, that almoſt every caſe of contuſion or ulceration was attacked with it, nor "could their cure be accompliſhed without a "few doſes of the acid. The number ſtated "above, (forty-ſix) are conſequently not the whole "who had taken the acid, but only ſuch caſes "as were unconnected with other complaints

"and

"and unable to do duty." Mr. Moffat alſo obſerves that ſome rheumatiſms inſtead of being relieved by the warm latitudes, were rather aggravated by them. It is probable that the ſcurvy had much to do in theſe caſes, for the diſtinction is often difficult; a trial of the citric acid would have decided the point.

Some deaths happened during this long cruize; but they were the common diſeaſes of human nature, and not to be imputed to any thing peculiar to a ſea life *. Mr. Nepecher reports the Orion to be perfectly well.

Sept. 1. Some very warm weather prevailed towards the end of laſt month. The ſhips lately returned from ſea, have been effectually recruited by a large allowance of freſh vegetables.

Sept.

* "The death that appears in the report for June, occaſioned by hydrothorax, was rather ſudden. The patient appeared to have a complicated diſeaſe, perhaps with ſcurvy. For a few days he took the citric acid, without relief: afterwards, large doſes of æther and tinct. opii occaſionally relieved his breathing: he died on the 7th day after he complained. On diſſection there was found in the right cavity of the thorax, a large quantity of very offenſive white coloured fluid: the lobe of the lungs in that cavity appeared ſmall and ſhrivelled up to the ſuperior part of the cavity. In the left ſide, the lung was all diſſolved to a ſmall piece of ſoft membranous ſubſtance; the quantity of fluid was not leſs than four quarts. The heart and veſſels had their natural healthy appearance; and the common quantity of fluid in the pericardium: the abdominal viſcera were in good order. It was really extraordinary that the

Sept. 20. Arrived at Spithead, the Queen Charlotte and London, under Admiral Colpoys, from Plymouth, the other ſhips having ſailed to join Admiral Gardner off Uſhant. Mr. Smith in his report mentions the death of Lieutenant Bell, of a violent inflamation of the lower part of the abdomen, that reſiſted all remedies. The ſcurvy for the laſt two months appeared in twenty-ſeven caſes, which were cured on board the London, with Mr. Smith's uſual attention and ſucceſs.

Mr. Caird reports the Queen Charlotte to have been in perfect health ſince ſhe left Spithead.

Sept. 22. Arrived the Thalia, Lord H. Powlett. Mr. Smith the ſurgeon reports her in good health. This ſhip left Sir A. Gardner on the 19th, all well.

Sept. 28. It appears that the ſmall-pox have been brought on board the London by a child in its mother's arms. This method of communicating the ſmall-pox infection to a ſhip's company, has been ſo frequent, that numbers of our ſeamen have on other occaſions fallen victims to the diſeaſe. It certainly might be checked, by taking care

---

the functions of life could be carried on to ſo great a length; one lobe of the lungs gone, and the other only half its proper ſize.

(Signed)

Juſte, June. T. Kenning, Surgeon."

care that no children of this deſcription be admitted. Eleven caſes have already been ſent from the London to Haſlar, as ſoon as the diſeaſe appeared: among theſe, is a young gentleman, who had been inoculated when very young, and though no eruption followed, the family apothecary aſſured the parents that the child was ſecure. This is a very delicate ſubject in medical practice, and much concerns the happineſs of families: we have met with many inſtances of the kind, ſo that ſurgeons ought to be guarded, how they decide; for in all doubtful caſes, it ſhould be a rule to inoculate the child again *.

In another part of this work, under the article SMALL-POX, I have propoſed a general inoculation thoughout the Fleet; the diſeaſe being of ſo ſerious a nature, in ſervice, from the number in every ſhip that never had it.

On the 21ſt of this month a contagious fever made its appearance in the Glory, among the marines. We could not trace it diſtinctly to its ſource, but it was probably brought on board by a draught that lately embarked. The ſymptoms chiefly

* About this time the ſmall-pox appeared in the Minotaur, juſt returned from the Weſt Indies. The infection was communicated in the ſame manner as in the London.

were chiefly cold ſhivering at firſt, ſickneſs at ſtomach, ſunk countenance, conſiderable ſtupor, weak pulſe, and general debility. Some caſes at firſt were rather ſevere, but not fatal.

Mr. Carter the ſurgeon, being early aware of the nature of the fever, took the firſt opportunity of ſending them on ſhore; by which precaution it did not ſhow itſelf after the 29th. On viſiting the Glory, I found every thing ſo much to my ſatisfaction, that it was not deemed neceſſary to trouble the Lords Commiſſioners of Admiralty on the ſubject. It was left to Sir George Home's choice, whether he would employ the uſual fumigations, with the exception of not performing them when the people might be expoſed on deck to very cold or moiſt weather: at the ſame time he was informed, that I had *no faith* whatever in this proceſs. The only means uſed to ſubdue the contagion, were, immediate ſeparation of the infected, additional fires below, ſhutting the windward ports, and keeping the decks dry, &c. It extended, in all, to thirty-four marines, and three ſeamen, who were probably hurt by hard drinking, having juſt received a large payment.

In the early part of the infection, there were cold eaſterly winds, with rain for two days; and it is not unlikely but the marines might be expoſed as centinels.

It is not much to be wondered at, that in the ſpacc of a few days, a number of men ſhould fall down, when we conſider that they ſleep ſo cloſe to one another, and expoſed to the breath of each other. From the manner of ſlinging the hammocks, in the higheſt part of the deck, they are alſo the more ſurrounded by the leaſt oxygented part of the atmoſphere: the portion which abounds moſt with *azote*, is always found to occupy the higheſt ſtratum.

What do the advocates for ſmoking and fumigating think of this ſpeedy extinction of contagion? Had the intelligent Captain of the Glory uſed the *gaſſes*, I ſhould have ſcarcely been able to adduce it as a freſh fact, in ſupport of my ſide of the queſtion. I apprehend the ſame means in ſhips, equally well regulated, will always be ſucceſsful: at leaſt, it was found to be ſo, in the general infection after the firſt of June. Some officers who tried fumigation with great earneſtneſs at that time, gave it up when they ſaw that I conſidered it as hurtful.

October 6. This day arrived at Spithead ſeven ſail of the line, the Niger and Migœra, under Vice-Admiral Sir A. Gardner, Bart. from a cruize off Uſhant.

The weather while this ſquadron was at ſea, was moderate and fine; there were ſome cold eaſterly

eaſterly winds, for a few days, and gales of wind commenced on coming to port.

Theſe ſhips are healthy after being ſeven weeks at ſea. The melaſſes being now ſerved to every ſhip, the officers and ſurgeons ſpeak of it with commendation. It is ſerved to the meſſes, and much reliſhed by the people: with it the oatmeal gruel is ſweetened: the biſcuit by ſome is toaſted till it acquires the taſte of coffee, and when boiled and ſweetened, makes an equally agreeable beverage: others prepare their peas in this manner. There has been very little ſcurvy during this cruize, which muſt have been prevented in a great meaſure, by theſe additional delicacies in the diet.

Some catarrhs occured on board the Royal George; but Dr. Higgins found them yield readily to general remedies. The Royal George had ſeventeen venereal caſes cured at ſea.

In the Namur, Mr. Seeds cured twelve bad ſcorbutic ulcers, ſince he left port. Such a practice as this is vaſt gain to the ſervice. He attributes his ſucceſs to the citric acid, the molaſſes, and the kind attention of Captain Whithed, in ſending proviſions and porter from his table, to whatever object the ſurgeon found them uſeful.

In the Defiance, Mr. Glegg cured twenty venereal caſes at ſea. The ſhip's company were raw, yet only two caſes of ſcurvy appeared. This

has been attributed to the method which Captain Jones inculcates for the uſe of the melaſſes.

The Niger has been ten weeks at ſea: At leaving port, four relapſes in fever happened, among men diſcharged from Haſlar. Mr. Burd does not aſſign any cauſe for theſe returns: no infection ſpread from them.

The Royal Sovereign, to which ſhip Vice-Admiral Sir A. Gardner lately ſhifted his flag and ſhip's company, ſent only one man to the hoſpital on coming to Spithead. Mr. Browne reports, that *thirty-four* venereal caſes have been cured during the cruize; all of which had applied for relief in the early ſtage of the diſeaſe, and chiefly imputed to the charge no longer operating as a barrier.

In the Majeſtic, catarrhal complaints were frequent, as reported by Mr. James Dunn. This ſhip returned but lately from the Weſt Indies. No ſcurvy appeared; the people have been long together, and in other reſpects were ſufficiently ſeaſoned for ſervice.

Much valuable information comes from Mr. Leggat of the Coloſſus. This ſhip had been lately commiſſioned at Plymouth, and her complement compoſed entirely of raw Iriſh landmen, the worſt crew that ever came into a man of war; a great part of them had been diſcharged from jails. During the time of fitting, the febrile infection made

made its appearance three or four times. It only extended to a few cafes at a time, and was kept under by fending the people to the hofpital immediately. One man became ill, and quickly all the members of his mefs. The fhip in the mean time was well aired, and fires kept burning in different places.

Towards the conclufion of the cruize off Ufhant, Mr. Leggat remarks, that the contagion appeared again. I do not think this fhip is perfectly fecure, even now, when we confider of what kind of fubjects her complement confifts, and a feafon approaching that will give activity to the difeafe. The fcurvy has alfo made confiderable progrefs in the Coloffus, and muft be expected to gain ground, fhould fhe go to fea immediately. She has, to prevent this, been ordered a double allowance of vegetables.

Thefe helplefs beings feem deftined to feel the effect of every difeafe: during the cruize, near feventy cafes of catarrh, unfit for duty, have been met with.

On board the Fame, the fcurvy was fcarcely known, till the arrival at Spithead; when it appeared in a number of cafes, but was quickly fubdued by the frefh provifions and vegetables.

October 10. A number of fhips having arrived from the Weft Indies, or expected at this time, and alfo from other foreign ftations, I was in-

duced to recommend to their Lordſhips, a ſupply of vegetables for their uſe, ſimilar to the Channel Fleet. This was readily complied with; and their Lordſhips have been pleaſed to order, that I ſhould exerciſe my diſcretion in theſe, and all other occaſions, in directing the quantity. The probability of hoſtilities with Spain, when a number of new-commiſſioned ſhips would be filled with theſe people, rendered this meaſure ſtill more neceſſary.

Nov. 10. I have mentioned above, my ſuſpicions that the Coloſſus was free from contagion; and had recommended when on board, the careful ſeparation of the infected, with other uſual precautions. Fumigation is now diſcarded from our ſhips. To the beginning of this month, from her arrival, thirty caſes of typhus have been ſent on ſhore: ſome with ſymptoms of great malignancy. For the laſt ten days none have appeared; and ſhe may now be deemed ſafe: ſhe is juſt ordered for foreign ſervice.

Captain Grindall left the Coloſſus at ſea, from bad health. In a letter from Plymouth, he informs me, that two fever patients ſent to the hoſpital there, died; another died in the Sound, and ſeveral while at ſea: but the condition of this ſhip, when he took the command of her, was particular. The Coloſſus was the flag ſhip of Rear-Admiral Pole, and ſailed with the un-

fortunate

fortunate ſquadron, under the command of Sir H. C. Chriſtian, which was obliged to return from contrary winds and ſevere weather, after being eight weeks at ſea, in February. The lower deck-ports could not be opened during this time; and from the motion of the ſhip, and water ſhipped in the gales, the proviſions and other articles had been ſpread about the hold, to the quantity of forty or fifty ton, according to Captain Grindall's report, before the ballaſt was expoſed. The conſequence of this, was the production of an atmoſphere in the hold and well, unuſually foul: no doubt, owing to the fermentation of the proviſions, and the decompoſition of the moiſture. The officers and ſeamen employed in clearing the hold, were grievouſly afflicted with ſwellings about the ſubmaxilary glands, and violent opthalmias; and were obliged to be relieved by others during this duty: ſometimes there was a neceſſity of ſtanding faſt, for ſome days, that the noxious vapour might be expelled. This account is intereſting: but the fever certainly ſprung from other cauſes, and was brought on board by the people.

It is a little ſingular, that the hold of the Glory, which was Admiral Chriſtian's ſhip, was extremely foul, and had not been cleared, when the fever made its appearance there. I ſhould have recommended the Glory to have been cleared,

had ſhe not been under ſailing orders : but even in her, the fever originated from contagion imported ; otherwiſe, it could not have been ſo completely overcome : the ſhips returned from ſea, report the Glory in perfect health. But it is a part of our means for deſtroying infection, to clear and dry the hold ; and on that account, I have been more minute in this detail *.

Nov. 18th. This day the following ſhips arrived at Spithead, under the command of Rear-Admiral Sir R. Curtis, Bart. viz. Formidable, Atlas, Cæſar, Mars, Triumph, Pompee, Orion, Irreſiſtible ; Stag and Proſerpine frigates.

The Surgeons of the Fleet have received directions from the Commiſſioners of ſick and wounded, to tranſmit to that Board a regular report of the medicine cheſt, from ſurvey, with a view of ſome additional articles being ſupplied at the expence of government. I am ſorry that this buſineſs ſhould be done, piece-meal : why not, at once, ſupply every article, of both medicine and neceſſaries, change the mode of paying ſurgeons, and modify their half-pay accordingly ?

Nov. 20th. The ſhips juſt returned from ſea are in perfect health, and have landed at the hoſpital, thirty people in different chronic complaints ; yet

* Admirals Chriſtian and Pole took with them, into other ſhips, their own people ; ſo that the Glory and Coloſſus were filled up with raw men.

yet ſome of them had been fourteen weeks from Spithead. The ſurgeons, in their reports tranſmitted to me, ſpeak in terms of the higheſt commendation, of the attention of officers, in every thing that relates to health. During this cruize, very few caſes of ſcurvy have appeared, as our preventive means ſeem to have attained nearly all the perfection of which they are capable. We now hope, that the allowance of molaſſes will be increaſed, and made permanent. The ſtate of this ſquadron affords a ſtriking contraſt to the condition of the ſhips under Lord Bridport, when off Belleiſle, in the ſummer of 1795; and is the beſt voucher for the utility of the meaſures, which I propoſed at that time.

On reviewing the occurrences of this Fleet, it muſt be a pleaſing reflection to Government, to be convinced that the late encouragement given to ſurgeons, has been extended to men, who merit every thing for their abilities, attention, and fidelity: the beſt teſtimony of theſe qualifications, is the health of their ſhips, and an empty hoſpital.

The naval character has been long renowned for the *heroic virtues:* the tranſactions of our ſhips will demonſtrate, that it has attained the higheſt ſtation in thoſe that are *amiable.* Great Britain, thus defended by her Fleet, and the health of her ſeamen

feamen preferved by the benevolence of her councils, will continue to wield the trident of the ocean, and engrofs the commerce of the world. War itfelf affumes a new afpect: thofe difeafes formerly the fcourge of a fea-life, are prevented or overcome; even Contagion, that has fo often fpread terror and difmay, has, by a fyftem of duty, made familiar to officers, become no longer terrible! With thefe reflections, I muft clofe my detail for the prefent.

MEDICINA

MEDICINA NAUTICA.

CONTAGION.

THIS ſubject is one of the firſt magnitude, that falls to the diſcuſſion of a Phyſician. By it, the operations of fleets and armies are overthrown on a ſudden, and the beſt concerted plans rendered abortive. Every fact that relates to it, becomes valuable, inſomuch as it aſſiſts our vigilance and diſcernment to detect it when concealed, or ſuppreſs it when apparent. The preceding part of this work, though comprehending only the naval tranſactions of a ſhort ſpace, has afforded an ample proof of what ſerious conſequences may be expected from the introduction of infection into a ſhip: when paſſed over with indifference, we have ſeen it run the hazard of diſabling a large part of our fleet for a length of time. But to treat it with levity and neglect, is criminal in the higheſt degree; the lives of human beings are the victims of this obſtinate folly. Ignorance itſelf is unpardonable on this ſubject;

§ for

for every phyſician and ſurgeon employed in the naval or military department, ought to make themſelves acquainted with all that has been written on CONTAGION, and keep a regiſter of their own obſervations, in order to familiarize the knowledge of it to others.

It is of great practical importance to trace infection to its ſource, the means that have conveyed it, and the cauſes that have given it activity. Though on an unpleaſant buſineſs, a mind accuſtomed to enquire after truth, will ſometimes find no ſmall degree of curioſity and amuſement. Some of my own adventures have now and then been romantic, if not hazardous, for the purpoſe of putting queſtions to a patient, or to clear a doubt. It is only from being minute and exact, that we can arrive at ſufficient information; and whoever may attach himſelf to the inveſtigation, will conſtantly meet with ſomething to encourage his perſeverance, and enliven his reſearches.

The field for obſervation, which has been employed by my ſtudies, has not been confined to a naval life, and acquaintance with the hoſpitals only; but an extenſive practice in a country ſituation, and a few remarks made in a large town.

What I have to offer, may be conſidered as an abridgement of general facts, rather than a methodical arrangement of them.

I would

I would define Contagion, to be a ſomething propagated from diſeaſed bodies, or from ſubſtances that have been in contact with them, producing a ſimilar diſeaſe in other perſons.

The latter part of this definition includes what have been called *fomites*, whether we conſider them as wearing apparel, bedding, or other articles that have been imbued with human effluvia, of perſons labouring under infectious diſeaſes. I have made uſe of the word *ſomething*, as contagion becomes only familiar to our ſenſes, as a ſomething impregnating, or conveyed in the exalations which proceed from bodies under actual diſeaſes, or what have been in contact with them *.

There are cauſes and circumſtances which favour the propagation of contagion in the diſeaſed ſubject, and increaſe its virulence when generated.

There are alſo cauſes and circumſtances which favour its reception in the healthy body.

That there is a ſtate of body, in a contagious diſeaſe, where certain cauſes and circumſtances contribute to increaſe the quantity, as well as the virulence of contagious matter, appears to me very obvious. A more aggravated degree of malignity, as it is called, will generate a greater quantity of infection, and as it may be confined in a larger or ſmaller ſpace, it will be leſs or more

* I wiſh to be underſtood as ſpeaking of Typhus Contagion alone, unleſs otherwiſe expreſſed.

noxious

noxious. The expreſſion, Malignity, often uſed in ſpeaking of this ſubject, ought to be explained. I would call a fever malignant, when with the ſymptoms of debility, there is a cadaverous ſmell ariſing from the body, an unuſual fœtor of the breath, ſtools, and other excretions, the tongue black and parched, the eye duſky or yellow, the countenance bloated and dejected, and the ſkin ſallow. In approaching a ſick bed of this kind, a perſon not much accuſtomed to ſuch viſits, will be very liable to receive the infection; and the unpleaſant ſmell will be much ſooner perceived, than by the phyſician, or other attendants.

Variolous Contagion, we can well ſuppoſe to be more rapidly ſpread from a patient with a large number of puſtules, than from one with only a few; ſo alſo the confluent kind will be more hazardous than the diſtinct, and by whatever means the one is converted into the other. It may be objected to this, that pus taken from the confluent kind, will, by inoculation, produce the diſtinct ſort; ſo may it likewiſe by the natural method: but this does not do away the argument, that the one ſpecies generates more contageous matter than the other. The virulence of variolous infection, like that of typhus, will be increaſed, in proportion to the ſpace in which it is diffuſed, whether in the atmoſphere, or in matter taken from a puſtule. By diluting the firſt with

with a large proportion of air, it gradually loſes its power of communicating diſeaſe. The other becomes inert by exſiccation, to a certain degree; but when ſoftened by water at blood heat, ſo as to be applied beneath the cuticle, it regains its activity, unleſs too much diluted, when it loſes it altogether. This virulence of contagion, is, therefore, nothing more, than the exhalations of the ſick, diſſolved in a ſmaller portion of atmoſphere.

We draw the concluſion, that a malignant typhus is more apt to generate contagion, becauſe we ſee that ſlight caſes of the ſame diſeaſe, and with mild ſymptoms, do not extend to others, although no means of prevention have been uſed; and in ſituations too, where there were a ſtrong pre-diſpoſition to aſſiſt its action.

There is alſo a period of the diſeaſe itſelf, that is incapable of generating infection ſufficient to produce the fever in others. We are aſſured of this fact, from a timely ſeparation having prevented the further progreſs; and by this means alone, I apprehend, we eradicate contagion in ſhips or any where elſe. We cannot draw any line of certainty, at what time it may ceaſe to be ſafe in permitting people to aſſociate with a patient; it will depend moſt on the nature of the ſymptoms, whether they are mild or malignant.

In the ſmall pox, the diſeaſe ſeems incapable of infecting another perſon, before the ſecond or third day of the eruption. This has enabled us to

remove patients into the hoſpital and hoſpital-ſhip, after the diſeaſe was aſcertained, ſo as to ſecure others from being affected. We have ſeen this in the Gibraltar, Valiant, Queen Charlotte, &c. In meaſles, however, this does not ſeem to hold good. The diſeaſe may be propagated at the moſt early ſtage of eruption; and if I was to be allowed a conjecture on the ſubject, I would ſay, that the contagion is the offspring of the catarrh which accompanies the meaſles.

Subſtances imbued with the exhalations from infected bodies, if not expoſed to the air, have their powers of communicating diſeaſe increaſed; or in other words, the infection from *fomites*, is ſaid to become more virulent than it was when firſt ſeparated from the body.

I am of opinion with others, that the exhalations or excretions of the ſick, are the vehicles of contagion. It is theſe which impregnate the atmoſphere with noxious matter: they affect in like manner, bed-cloaths or apparel, and every thing that can imbibe them, when in contact with the diſeaſed body. When bed-cloaths, or body-linen, but particularly ſilk or woollen cloth *, have been expoſed to theſe exhalations, and then heaped together for a length of time, the noxious effluvia are, as it were, multiplied, and will more certainly infect others, than they did at firſt. The

* Being animal matter, and more eaſily liable to decompoſition.

The bales of goods which brought the plague to Marſeilles, and affected the people that opened them ſo ſuddenly, had their virulence increaſed by not being duly ventilated. When the jail fever contagion was brought into court by the priſoners at the Oxford aſſizes, and more lately at the Old Bailey, the fever was propagated from the cloathing of the priſoners: no doubt, from being confined in impure, ill-aired cells, this infection became more virulent. The highly concentrated ſtate of the contagion in the bales of goods, could only have been brought to that ſtate of virulence, from the cloſeneſs of the package; it cannot be ſuppoſed that any human beings could have put them together otherwiſe. The nurſes of hoſpitals know well, as Dr. Lind tells us, that there is moſt danger of catching a fever, when they pile heaps of bed-cloaths or body-linen together, for a few days, before it is carried to the waſh-houſe. The waſherwomen at Haſlar have alſo told me the ſame thing. They know when a dangerous fever is in the hoſpital, from the bad ſmell of the cloathes; this makes them air them abroad, till the ſmell is gone, and then they can waſh them with ſafety. But if it happened, from the hurry, that this could not be done, or if it was neglected by deſign, many of them have been ſeized with the ſickneſs. The porters and people employed in cleaning and fumigating the blankets and beds at Haſlar, are well

 acquainted

acquainted with this fact, and they measure the danger by the badness of the smell. This ought to instruct every body to stand to windward of these infected substances, when they are opened; as the current of air would then carry it the other way. In one of the courts of justice, the people who stood between the prisoners and a window into which the wind blew, escaped the infection, while those on the other side were sufferers.

In the summer of 1793, while the Orestes brig, commanded by Lord Augustus Fitzroy, lay at Plymouth, she was anchored very near and to leeward of an army transport, which had on board a very malignant fever among the soldiers. While the soldiers were moved on deck, to go on shore to the hospital, the crew of the Orestes, from curiosity, walked on deck, to look at them. Such was the concentrated state of the contagion, among the cloathing and bedding of these troops, on coming from below, that eighteen people belonging to the brig, were quickly seized with the same fever; the infection of which had been conveyed by the current of wind. It did not, however, extend much farther in the Orestes, from the attention of her Commander. But this ought to be a caution for ships to keep clear of those that have fevers on board, as a virulent contagion may be conveyed for a considerable distance.

Dr. Lind is inclined to think, that washing the bed-linen in hot water, even when first shifted, is attended with much risk; and that the noxious matter may be volatilized by the heat of the water, and affect the woman. For this reason he has recourse to his favourite process, *fumigation*, to insure the washerwoman. The heat of his fumigating furnace, would no doubt dry the linen, and exhale any moisture: but our practice in the Charon, was to plunge every thing, as it came from the bed, into a tub of hot water kept ready on purpose. The linen was washed and dried immediately after. We had in that hospital many malignant cases of typhus, and some deaths, yet no infection was ever spread there.

Let us now inquire how infectious matter becomes more virulent, and liable to spread disease, when confined, as in beds, cloathing, or bale goods, &c. denominated *fomites*.

This fact being well known, did not fail to excite the attention of physicians to solve the mystery. The most plausible reason that could be assigned, was the generation of animalcula; the cotton or woollen cloathing was said to serve as a nest for the corpuscles to multiply; and thus the contagion was thought to increase sevenfold. We shall afterwards see that this notion entirely regulated the different methods that have been used to destroy contagion, and check the fevers

which were ſpread by it. This mode of accounting for the fact, was certainly a bold effort of the imagination; but I do not think it can be called any thing elſe; for theſe little animals have never been ſeen even with a microſcope; and I cannot help concluding, that like ſome other animals which we have heard of, they are fabulous. The ſubſtances we are now ſpeaking of, being more or leſs tainted by the excretions of the ſick, it will facilitate our inquiry to know the nature of theſe excretions. Now the fœtor of the breath, perſpirable matter, &c. evidently demonſtrate that they differ from the healthy ſtate. The ſmell, to our ſenſes, comes very near to what is called *ſulphurated-hydrogenous gas*. Some of the fluids within the body would ſeem to be, in ſome degree, in a ſtate of actual decompoſition; unleſs we can ſuppoſe the mucous glands of the lungs ſecreting a fluid, that taints the expired air in this manner. The decompoſition of the fat, which ſometimes diſappears very ſuddenly in fevers, may give ſome ground for the ſuppoſition, that a large proportion of theſe exhalations are compoſed of hydrogenous gas. But whether we can go thus far or not, what is ſeparated from the body, it is plain, is more diſpoſed to decompoſition, than when the body is in health. Now this proceſs will ſtill go on, whether expoſed to the atmoſphere or not, with this difference, that, by expoſing ſubſtances which have imbibed

imbibed the exhalations of the diseased to a free air, the noxious gasses will be dissipated as quickly as they are evolved: while on the other hand, by laying the cloathes in a heap, packing them firm in a chest, or making up cloth into bales, the gasses are concentrated into a small space; *qua data porta ruunt*, and woe to the man who first inspires them!

This appears to me, to be a better explanation of this business, that substances tainted by the bodies of the sick, are more liable to communicate disease than the bodies themselves. Now this does not hold out an idea, that the powers of contagion are multiplied, as by generation; for that would be to say, that these gasses are *themselves*, what we call the matter of infection. I would only go so far as to assert, that they are the vehicles of it, till more certain experience shall determine farther.

It has been long supposed that contagion may be engendered in particular situations; and typhus fever is said to be often the consequence of this. When a number of people are confined in a small space, ill-ventilated, damp, and dark, to which may be added, neglect of cleanliness, both in person and cloathes, with low diet, and depression of spirits, a jail fever often follows. When the human body is exposed to air not sufficiently oxygenated, the faculties of mind, as well as the powers of the body, lose their proper vigour. The body, in this

case, assists in sowing the seeds of disease for its own destruction. The deficiency of the due stimulus, leaves the body in a state of debility and torpor: the blood loses its florid colour, and the muscular fibre its power of contraction. By these means the secretory organs no longer separate a healthy excretion, and the air is further injured by a fœtid breath and perspiration. If intemperance in the use of spirituous liquors, is a part of the habit of living, it joins its effect to that of other hurtful causes; and hard labour, and a watery aliment, bring the subject to the degree of typhus debility.

Such is the history of human misery in many of the great towns of England. And now that I am upon the subject, it would be a sin to pass without unfolding it a little more. During the short time that I attended the dispensary of Newcastle, just at the beginning of the war, I was sent for to a poor man, in a miserable and low part of the town, called Sandgate. He was ill with what is called a spotted fever. He lay in a large garret room, on a bed without curtains, round which were standing six children, the oldest not more than nine years old. I asked the usual questions concerning his case, and whether he had any person to assist him? He answered in a tone of voice, that bespoke the deepest affliction, that his wife was gone out, for the first time, since she recovered from the fever,

(the

(the children had been ill firſt) to ſell the laſt gear they had to ſpare, to *buy meal for the children!* He worked on the quay, and his wages were one ſhilling and two-pence per diem, for the year. This man walked to my lodgings in a fortnight, the firſt day he returned to work; for he ſaid that he could not afford to lay by any longer.

When I practiſed as a ſurgeon and apothecary, after my return from Africa, at the end of the late war, in a ſmall town in Northumberland, with an extenſive country buſineſs, ſome ſcenes ſimilar to what have been juſt related, came under my view. Two ſervants, of two opulent farmers, applied to me for relief. The firſt had ſeven children, who took the fever, one by one, till the whole became ſick. His wages were one ſhilling per diem. His maſter was a rich man, and well knew the wretched condition of this family. He thought himſelf charitable, by allowing them to pull turnips from his field, *for food:* thus they fared as well as his oxen and ſheep!

The other ſervant was a ſhepherd; but his herding, as the ſaying is, was a poor one. The firſt and ſecond of ſix children, were able to work a little, till they got a fever in a ſevere winter, and down they fell, one after another; the father and mother at laſt. They wanted to ſell the cow, which they thought would buy neceſſaries while they were ill, and pay the doctor: and by this time warm weather would come, and the oldeſt would be able to work. To

prevent this, a ſmall ſubſcription was obtained from ſome charitable ladies in the neighbourhood; by which means the comforts of wine and diet came within their reach. In the mean time, the maſter heard that a ſum of money had been raiſed for the relief of the family. His heart opened—a rotten ſheep was found dead in a furrow; he deſired the ſhepherd to uſe it for his children, but to take care *to return the ſkin!* * Hear this relation, ye legiſlators, and fix the *minimum* of labour!—These caſes are a few of many ſcenes of diſeaſe and poverty, which have fallen to my attendance.

The ſituation of the African negroes, confined during the middle paſſage, in the ſlave-rooms of a guineaman, has been mentioned by Dr. Lind. The confinement of ſo many wretched creatures, in a ſmall ſpace, deſervedly attracted the animadverſion of a phyſician inveſtigating the ſources and progreſs of Contagion. But contagious fevers we find are not their diſeaſes. We can well believe, that if the negroes were cloathed, that filth and uncleanneſs might generate infection; the exceſſive quantity of perſpirable matter emitted from the ſurface, in a high degree of heat, would ſoon accumulate, and adhering to linen or woollen cloth, might at laſt propagate the forms of diſeaſe. But this matter being daily waſhed from their ſkins, and the rooms kept clean, nothing offenſive, or of

* What a contraſt to the benevolence of our officers!

animal

animal origin, is allowed to undergo the final decompoſition, which it would do, in naſty and unventilated cloathing. Thus alſo the poor inhabitants of warm countries are free from the diſeaſes of thoſe in colder regions. Indeed, we much doubt, if a genuine typhus has been ever ſeen within the tropics: it has not been often ſeen. A Liverpool ſhip, called The Hankey, by being crowded with people, at Bulam, on the coaſt of Africa, was infected by a contagious fever, of which many died. Dr. Chiſholm dates the origin of a fever at Grenada, from this ſhip. But his deſcription does not correſpond with our jail fever.

Does marſh effluvium differ from contagion, or in what properties do they reſemble one another?

It has been argued by phyſicians of the firſt authority, that intermittent fevers ariſe from the miaſmata of marſhes, and continued fevers, from human effluvia. This is no doubt a very general rule, but it admits of many exceptions. I have ſeen a family, where the father was labouring under an obſtinate tertian, while the mother and ſome of the children were ill, in bed, with a typhus. Yet the remote cauſes, as near as we could trace them, were the ſame in all. They proceeded, in the month of February, from a cold damp houſe, and deficiency of diet. Nay, I have conſtantly remarked in thoſe ſhips, where contagion prevailed, that many caſes of regular intermittents, and remittents, occaſionally appeared. When they in-

creaſed in proportion, to the number of the continued type, and the latter becoming milder in its attack, I conſider it as an infallible ſign that the power of the infection was on the decline, and would be ſpeedily ſubdued.

I ſhall now give ſome inſtances, where continued and intermittent forms, appeared promiſcuouſly during the progreſs of one contagion. On the 12th of February 1793, I joined the Vengeance of 74 guns, at Spithead, fitting to receive the broad pendant of Captain Charles Thompſon, for the Leeward Iſland ſtation: and alſo to carry out five gentlemen, deputies from the French Iſlands to the Britiſh Miniſtry.

The Vengeance had been a guardſhip at Chatham, and was ready to proceed to Portſmouth, in the beginning of January, fully manned. At this time ſhe received four hundred men from different veſſels, to carry to the fleet: of this number, came two hundred from the Nemeſis frigate, at the Nore; and among them, two men ill of the jail fever, one of whom ſoon died. The paſſage to Spithead was long, and the weather rainy and boiſterous. During this time, the infection, from the two fever patients, had made a great progreſs; for here was every thing that could render it active, a crowded ſhip, new-raiſed men, badly cloathed, ſleeping on deck, a cold ſeaſon, &c. Sixty caſes were ſent to Haſlar on the

the arrival at Portſmouth; ſome had been cured on board; and when I joined the ſhip, there were eleven people confined to their hammocks with this fever.

The diſeaſe was hitherto almoſt confined to the new-raiſed men, who were Iriſh landmen, dirty and ragged to a proverb, the very dregs of jails in the metropolis. Men of this deſcription, ſuch as are often to be met with in ſhips, are the victims of all general ſickneſs. They poſſeſs neither the courage of an Engliſhman or Scotſman under diſeaſe. They ſink from deſpondency when really ill; while at other times, with a ſervile low cunning, they are conſtantly peſtering us with trifling or pretended complaints.

The uſual precautions of purifying the ſhip were immediately put in execution, and additional cloathing was ordered to thoſe in want of it; at the ſame time care was taken to enforce perſonal cleanlineſs where it was neceſſary. Every man, with the firſt ſymptoms of indiſpoſition, was carefully watched, and ſent on ſhore.

About the beginning of March, the infection ſeemed to be on the decline; which appeared from the attacks being leſs ſevere: ſome caſes of the remittent and intermittent type, were now obſerved. Truſting to a mild ſeaſon approaching, and the voyage we were bound, to warm latitudes, I conſidered the ſhip's company in condition for ſea. The Captain tranſmitted this opinion officially

to

to the Admiralty; and we were ordered to depart, without delay.

On Sunday March the 10th, we ſailed from Spithead with a convoy. The ſick liſt conſiſted of ſeventeen venereal patients, and ſeven in fever, ſome of them regular tertians; and to theſe may be added a few with bad ulcers, who were kept on board, being valuable ſeamen *.

The weather was cold; the wind at N. E. and the thermometer at noon, 44° of Farenheit.

On the thirteenth we arrived at the Cove of Cork, with two freſh caſes of fever. During our ſtay here, the liſt continued to fluctuate; ſome were every morning diſcharged to duty, and others added in the courſe of the day; in both the continued and intermittent forms.

March the 23d, ſailed from Cork, with orders to join a ſquadron under Rear-Admiral Gardner, deſtined for the Weſt Indies; it having been reported that the French had diſpatched ſix ſhips of the line, to theſe ſeas. From this time to the 31ſt, we cruized off Scilly, without meeting Admiral Gardner; when the Captain thought proper to bear up for Spithead. The wind for the firſt

* It was ſome time before a fever of this kind was ſuſpected on board the Nemeſis, after ſhe had ſent her ſupernumeraries to the Vengeance. She was now come to Spithead, and obliged to go into harbour, having ſent nearly her whole complement to the hoſpital.

ſix

ſix days was tempeſtous at N. E. and very cold, but ſhifted on the 31ſt to S. W. The attacks of fever, ſince leaving Cork, had been more numerous than on the preceding week. They were both of the continued and intermittent types; in all ſeventeen.

On Tueſday the 2d of April, arrived at Spithead.

While in port, the liſt varied occaſionally, but caſes of fever ſtill appeared. On the 16th of April ſailed again. On the 28th anchored in the Cove of Cork; and ſailed for the Weſt Indies on the 2d of May, with a large convoy. Thermometer 49°. Sick liſt twenty-three; eleven of theſe, fevers and agues.

May 6. Some fever patients returned to duty; two others added to the liſt. Therm. 59°.

May. 10. Lat. 45,21°. Therm. 60°. Fevers doing well.

May 15. Lat. 32,36°. Therm. 62. Only two fevers added to the liſt ſince the 10th. Both caſes with regular remiſſions.

May 17. At Madeira. Therm. 66°. No fevers confined to bed.

The ulcers, from great attention to dreſſing and diet, getting faſt well.

May 25. Lat. 25,25. Therm. 69. Only three very ſlight attacks of fever ſince the 17th.

Sick

SICK LIST.

Convalefcent -	6
Fever - - -	3
Venereals - -	3
Ulcers, &c. -	9
	21

May 27. Lat. 23. 34. Therm. 74. Croffed the tropic in the afternoon, when the failors performed the ufual ceremonies. Neptune in his car was drawn round the deck by fix tritons.

May 31. Lat. 20,14. Therm. 72. Sick lift thirteen.

June 4. Lat. 15. Therm. 76. This day a man died, who had the fever fix weeks ago: but feemed to fink under mental affliction.

No Fevers.

June 11. Anchored in Carlifle Bay, Barbadoes. Therm. 82. Sick lift ten. But neither a feverifh patient, or venereal, or ulcer, of the number.

Had we been fortunate enough to proceed on our voyage when we firft left Spithead, the contagious fever had probably difappeared long before it did. It was curious to obferve how quickly it declined as we approached the warm latitudes. The treatment of this fever, and particularly the agues, will be given under their refpective articles.

This

This ſhip, the Vengeance, returned home in October, in perfect health, except what ſhe ſuffered, in a paſſage of nine weeks, from ſcurvy.

Some time in the months of October or November 1793, the army under the command of Lord Moira, embarked; for the purpoſe, as it was ſuppoſed, of making a deſcent on the coaſt of France, to aſſiſt the loyaliſts. Part of theſe troops had been originally intended for an expedition againſt the Weſt India Iſlands, under Sir Charles Grey. But the deſtination being changed, and the paſſage expected to be ſhort, being only the ſmall diſtance from the Iſle of Wight to the coaſt of France; it was thought that two tranſports could ſafely contain what were in three. Health on this occaſion, and ſeaſon of the year, ſeems to have been little attended to. This army proceeded to Guernſey, not being able to land on the French coaſt: ſome of the tranſports were driven from their anchors in gales of wind; and the whole returned to England in the end of December, very ſickly. The weather was boiſterous and wet all the time; which, with the crowded ſtate of the veſſels, ſoon ſpread fevers and dyſenteries among the ſoldiers. The accommodations at the Iſle of Wight, being unequal to the number of ſick, a great part of the worſt caſes were ſent to the Royal Hoſpital at Haſlar, where I was

was now appointed Phyſician. Whether the infection had been carried on board at the time of embarkation, I was not able to learn: the ſoldiers themſelves, imputed their illneſs to the crowded dirty tranſports, and the confinement during bad weather. Many of them had not taken either medicine or food that was fit for their ſituation; for ſome of the ſhips had neither ſurgeon or mate. There were a larger number of bad caſes in typhus, ague, and dyſentery, than come uſually to a naval hoſpital at one time. From the ſame tranſport, and in the ſame regiment, were brought people ill of the three diſeaſes juſt mentioned: and the general remote cauſes, from every enquiry that I was able to make, appeared to be the ſame in all. A few of the agues long reſiſted the powers of medicine.

We have now ſeen in the Vengeance, the contagion of typhus, brought on board by two men, extend throughout a ſhip's company: and in the ſpace of four months, in different ſubjects produce continued remittent and intermittent forms of fever. In Lord Moira's tranſports, ſomething of the ſame kind occurred, with the addition of dyſentery. To theſe I might add other facts in confirmation; from almoſt every ſhip which I have attended under a general contagion. Vide Mr. M'Callum's Report in the General Abſtract, for May 1794.

Marſh

Marſh miaſma ariſes chiefly from ſtagnant water; or its decompoſition, occaſioned by animal or vegetable putrefaction: for water ſuffers no alteration, unleſs ſubſtances are thrown into it, which facilitate the ſeparation of its principles. The marſh effluvium, like contagion, acts more powerfully, in proportion to the quantity of atmoſphere in which it is held. Hence its influence is directed by the current of wind; and the nearer you approach the ſpot where it is generated, the more certainly will the body be affected. Thus, houſes near ſtagnant pools, by the opening of windows, have had their inhabitants ſeized with agues; and camps, to leeward of marſhes, have ſuffered in a ſimilar manner; or eſcaped by moving to another direction.

Hydrogenous gas being copiouſly evolved during the decompoſition of water, would make us ſuppoſe that it is a principal ingredient in this noxious effluvium. If vegetable matter has aſſiſted the proceſs, of courſe a portion of carbonic acid gas will be added: but there are ſome vegetables which contain azote, and when they are immerſed in ſtanding water, it is well known that the ſmell becomes uncommonly offenſive. Such are the water of putrid cabbages, and the ponds where flax has been ſteeped to effect the ſeparation of its rind. I have frequently known this

water prove deleterious to cattle. Animal ſubſtances muſt therefore be more hurtful than vegetables. Salt water, in contact with vegetable matter, when confined in pools, becomes ſooner offenſive than freſh water; but it would be difficult to follow theſe ingredients through all the different forms of combination. Theſe facts, however, ſtrengthen the ſuppoſition, that hydrogenous gas is the chief agent in marſh effluvium. I would call it nothing more than ſuppoſition, becauſe the ultimate deciſion is not to be obtained; it becomes too ſubtile for our ſenſes.

What has been called the inſenſible perſpiration, which ariſes from the ſurface, and the lungs, we have a right to believe carries with it in ſolution a portion of the variolous matter, which charges the atmoſphere with the contagion of ſmall-pox; even in ſuch quantities as to impregnate the cloathing of attendants and viſitors; by which means it has been frequently carried to families and villages many miles diſtant from its ſource. Different diſeaſes generate their ſpecific contagions by different methods; as elephantiaſis, lepra, lues venerea, pſora, &c. Even the rabies canina has its organ of poiſon, for the ſaliva becomes the vehicle of infection.

The petechiæ, vibices, or miliary eruptions, and apthæ, which are common in malignant fever, form no part of the character: ſometimes a few of

of them appear, and at other times nothing of the kind can be obſerved. We know of nothing that can propagate this fever, but exhalations from the body. But a patient in typhus was ſent from the Venerable to the hoſpital ſhip, with a fœtor about him, that exceeded any thing of the kind which ever came within my knowledge. After being waſhed and ſhifted, it ſtill continued; and was perceived at a conſiderable diſtance. He died in a few days; yet nobody was infected from him, either in his own ſhip, or our hoſpital. There was probably ſome peculiarity of conſtitution here.

We ſhall now take notice of thoſe cauſes and circumſtances which favour the reception of contagion in the healthy body. This includes both external agents, and what has been called predispoſition.

The moſt prominent features in the character of the typhus contagion, are its generally appearing in a cold climate or ſeaſon, and diſappearing as ſummer advances. This has been long obſerved; but particularly mentioned by Dr. Blane. There may be many exceptions to the general rule; but the fact ſeems fully eſtabliſhed. My obſervations have all been to this effect; that the infection of typhus is moſt apt to prevail in cold weather; and if it ſhould appear in ſummer, it is more eaſily ſubdued.

Among the poor, in large towns and cities, who live in low, dark, and damp houſes, it begins in the months of October and November; and diſappears in April and May. Among the indigent labourers in country ſituations, where I have met with it, from the ſame cauſes, its beginning and termination vary little from this form. Even in ſhips, it proceeds, more or leſs, in that manner. We have conſtantly remarked, that the number taken ill in a given time, depended very much on the ſtate of the weather. A few rainy days, in ſucceſſion, never failed to increaſe the ſick liſt. The people ſent to Haſlar from the London, complained of the weather to which they were expoſed in returning the ſhip's ſtores: no particular diſeaſe was known in the Gibraltar, till ſhe encountered ſtrong gales of wind, with rain, in attempting to join the Fleet. The fever patients in the Vengeance were uniformly more numerous, exactly in correſpondence with the weather being wet and ſtormy: we alſo obſerved this in the Valiant. The army under Lord Moira, when embarked at Southampton and the Iſle of Wight, were thought fit for actual ſervice: but the weather no ſooner became wet and boiſterous, than the ſickneſs, typhus, and dyſentery, ſpread in proportion.

When I firſt viſited the Portugueze ſquadron at Spithead, there was not a man confined to bed;

bed; but I ſaw in each ſhip a few ſickly-looking men walking about, evidently with ſlight ſymptoms of typhus. It was now ſummer, and the weather uncommonly warm in England. It did not require much foreknowledge to predict, that theſe people were not equal to ſea-duty in our Channel. We left St. Helen's in the beginning of September; and, on the 1ſt of October, there were upwards of four hundred caſes of fever among them.

Now, as cold weather, and a winter ſeaſon, favour the action of typhus infection; we know that warm weather, and a ſummer ſeaſon, aſſiſt in its extinction.

The fever which was ſpread from the French priſoners to our ſeamen, after the battle on the 1ſt of June, appeared in the firſt attacks about the 8th and 10th of the ſame month. There were, perhaps, never any inſtance of contagion becoming ſo general in a ſhort time. Moſt of the French prizes had a number ill of the fever, particularly the Sans Pareil, Northumberland, and Vengeur, which ſhip ſunk a few hours after the action; from the laſt the Alfred was infected. More than two thirds of our Fleet were by theſe means expoſed to the contagion. The heat was greater at this time than ever I remember to have known it: this alarmed many for the ſafety of the Fleet. To the extreme heat, however, I attributed,

tributed, in a great meaſure, the ſpeedy extinction of the fever: under other circumſtances of ſeaſon and temperature, I think our ſituation might have been very different.

In the cruize with Lord Bridport, off Belleiſle, in the beginning of July, a fever of this kind appeared on board the Orion; which was firſt known by eleven men being ſent to the hoſpital ſhip. I traced the contagion to men, who had come from the Royal William receiving-ſhip, a few days before the Orion ſailed, as mentioned in the general abſtract. The weather was very cold in the firſt part of our time at ſea; and I think that foſtered the infection: but the ſummer heat was now conſiderable. Every man with the leaſt ſymptom being moved on board the Charon, not a ſingle caſe appeared afterwards: three of theſe died. I could not help believing, that the warm ſeaſon had a conſiderable ſhare in aiding our endeavours on this occaſion; becauſe the Orion had a new ſhip's company, and not quite brought to due order and diſcipline.

The fever which appeared in the Niger frigate, affords another example of warm weather favouring the expulſion of fever. Captain Foote, who watched over the health of his people with the concern of a father, thought of nothing but being obliged to move every article out of his ſhip, to eradicate the diſeaſe. There occurred a few warm days about this time, which did not allay his

fears.

fears. Knowing that the Niger was under the firſt order and diſcipiine, I felt no alarm; but deſired them to continue the ſeparation of the diſeaſed, as ſoon as a freſh attack was known. This, with other attentions on the ſide of the officers, and Mr. Burd, the ſurgeon, cleared her in a week, after ſending forty-four men on ſhore.

The voyage of the Vengeance to the ſouthward, may be juſtly cited as one of the ſtrongeſt proofs we can draw; and by referring to it, I ſhall proceed to ſomething elſe.

We ſhall now ſpeak of the ſtate of the body, that ſeems to favour the reception of contagion.

Authors ſeem to have agreed, that there is a period of life, in which fevers are more frequent than at another. After the age of forty-five, the chance is in favour of the conſtitution eſcaping diſeaſes of this claſs. The reign of health and ſtrength, therefore, appears to be endowed with ſomething that renders the body ſo eaſily ſuſceptible of contagion. This is that ſenſibility of the nervous ſyſtem, which prevails in youth, and is gradually obliterated as we approach to old age. It is connected with certain external ſigns of character: ſuch as a blooming florid complexion; ruddineſs of the whole ſkin; arterial plethora, and muſcular ſtrength.

It is, however, to be obſerved, that it is in particular conditions of body, in the youthful conſti-

tution, that eſpecially renders it liable to be affected by contagion, more at one time than at another. This is that ſtate of debility, that ſucceeds to all præternatural excitement; ſuch as fatigue after labour; the languor which follows debauch, as hard drinking and exceſſive venery; cold after being over heated; approaching the ſick-bed with an empty ſtomach, fear of being infected, &c. We can only reaſon on theſe predispoſing cauſes, as leaving the body in a ſtate to be acted upon by the contagion. But the condition of people after intoxication, is a more general remark than any other; and when it is combined with other debilitating pleaſures, is ſtill worſe. Many of Dr. Cullen's pupils will remember his facetious application of this fact. The Doctor ſaid, when he was called to viſit a ſtudent confined with a typhus fever, he knew very well how it was got. "My young gentleman," ſaid he, "after getting drunk, and paſſing the night in houſes of *a certain deſcription*, comes the next day, debilitated with debauch, into the clinical ward, where he is expoſed to the contagion."— The laſt ſeaſon I had the honour to attend my venerable Preceptor, at the very time of the lecture he was giving on this ſubject, three gentlemen of my own acquaintance lay ill of the fever. After ſome irregularities of the preceding night, they all received the contagion at the bed-ſide of

a hand-

a handſome ſervant girl, that lay dangerouſly ill in the infirmary; whoſe youth and beauty made them pay her particular attention at their viſits.—Dr. Cullen would add, "that he generally found new married people among the number infected, when fevers prevailed in a neighbourhood."

While the Fleet were infected in the ſummer of 1794, a part of the prize money was paid about the beginning of July. It was particularly hurtful to the ſeamen, and tended in a great degree to multiply the caſes of fever. *

Theſe conditions of body may alſo be applied to the action of marſh miaſma. Hence ſleeping on the ground in a ſtate of intoxication, has been fatal to many in low damp ſituations; but the thoughtleſs ſailor and ſoldier are the moſt frequent

* "At laſt report, I had the ſatisfaction to remark, that the fever, which ſo long harraſſed our people, had very nearly, if not entirely, diſappeared; and, previouſly to the late battle, we had become tolerably healthy. Since that period, however, a fever equally virulent, or even more ſo, has appeared in our ſhip, and ſtill continues to rage. There can be no doubt, that we owe this freſh importation to the French priſoners we received after the action of the 1ſt of June; as I obſerved ſeveral of them affected with it, a day or two after they came on board; whom I have no doubt had been ill ſome days before I ſaw them. At this time our people were apparently free from it; and I mentioned to Captain Pringle my fears of the conſequence. Notwithſtanding every thing was done to prevent, as much as poſſible, all communication, I am ſorry

quent victims of this indiſcretion; hence the fatal diſeaſes which deſtroy them in the Eaſt and Weſt Indies.

The withdrawing of any accuſtomed ſtimulus from the body, alſo favours the action of contagion, and the effluvium of marſhes. Thus, a ſailor thinks he will eſcape a fever as long as his tobacco laſts, and dreads the end of it. An empty ſtomach is hurtful when expoſed to either diſeaſe. Bleeding and purging are hurtful; they act by leaving the body rather in an abſorbing than perſpiring ſtate.

The application of cold to the body; whether from the ſurrounding atmoſphere, or from cold water, or wet cloathing, and whatever gives the ſenſation of chillneſs to the ſurface, favour, in an eſpecial

ſorry to obſerve, my prediction has been too much confirmed. It has unqueſtionably been much aggravated by the intemperance of the men. This, indeed, particularly ſince the payment of the prize money, has been carried to a degree of exceſs, which I had never before ſeen; and exceeds even credibility. When frequent intoxication happens in a healthy ſhip, it does not produce any laſting bad effect; but if it occurs where the contagion of fever is preſent, it is a never-failing cauſe of an increaſe of the diſeaſe. From what I have obſerved, I believe it to be the moſt powerful remote cauſe; and I have no doubt, that the difficulty in conquering the contagion, at ſo favourable a ſeaſon of the year, is in a great meaſure to be aſcribed to exceſſive intemperance.

(Signed)

Valiant, *July* 20, 1794. GEO. M'CALLUM, Surgeon."

especial manner, the action of contagion and marsh miasma.

I have often remarked in the wards of Haslar, during cold weather, that weakly patients, just recovered from fever, frequently relapsed, by getting up, though they did not go out of doors. The allowance of coals at that time was too small for a large ward: besides, the body thus debilitated, was very sensible of cold air. We also see instances of relapse by a person going too soon out of doors, or a sailor, on board, exposing himself too soon on deck. The convalescent among the Portugueze, on board the Europe, by being exposed to the cold under the half deck, where they lodged, were very subject to relapses.

But I have known cases, of seamen while washing decks, seized with the rigors and shivering, which usher in the attack of typhus, after being exposed to the contagion in a sick birth. One of the most obstinate intermittents which occurred in the Vengeance, began in a landman, during the operation of scrubbing in a tub of cold water: this had been ordered by way of punishment for dirtiness. Now I apprehend the cold, in these cases, accelerated that accession of fever, which, for it, might have been delayed for a length of time.

We have a right to suppose, that typhus is a disease peculiar to cold countries, and that it is seldom found when the heat rises above 72° of Faren-

Farenheit. If this is a fact, it will happen that the inhabitants of warm climates will be very liable to receive the infection when they come to northern latitudes; and more ſo than the natives of theſe latitudes. It ſeems very generally admitted by phyſicians, who have written on diſeaſes peculiar to certain regions or diſtricts, that ſtrangers are more apt to be affected than the reſident inhabitants. The Yellow Fever of the Weſt Indies, and the Remittents of India, with the Dyſentery of both, are moſt fatal to Europeans newly arrived. The ague counties of England are deſtructive to viſitors. It is proverbial of the farmers, in the unwholeſome marſhes, marrying wives from diſtant parts, as a ſpecies of traffic to accumulate wealth; becauſe they know that a ſtranger cannot live long in theſe fens.

When a ſtudent at Edinburgh, I have often remarked the frequency of typhus fever among gentlemen from the ſouth; but particularly thoſe from the ſouthern provinces of America. During the laſt winter I ſtudied there, from my intimacy with ſome gentlemen from that country, I could not help taking notice of the frequent occurrences. Mr. Quin died that ſeaſon, 1784-5; Doctors Gibbon and Lyon, with ſome others, recovered with difficulty.

A Portugueze ſquadron came to Spithead in 1793; and became ſo ſickly, that they were obliged to land their men at Haſlar Hoſpital: many

* of

of them died with ſymptoms of great malignity. The fate of the ſquadron which we have already mentioned, was ſtill worſe; yet both left Liſbon in their uſual health. We know that natives of Africa are very liable to our fevers; in ſhips they are commonly amongſt the firſt ſufferers.

We can, therefore, eaſily ſuppoſe that the inhabitant of a warm country, accuſtomed to the ſtimulus of the ſun's heat, from 75° to 85° of Farenheit, by changing to a northern latitude, will be more liable to diſeaſes which originate from deficient excitement. By withdrawing the cuſtomary ſtimuli, the body is left in a condition more eaſily to be acted on by other impreſſions; hence the effect of contagion: in other words, they have all that has been called pre-diſpoſition to favour its action *.

What are called the active paſſions, or ſomething that ſtrongly engages the attention, have been reckoned among the preſervatives againſt infection.

* It may be in the recollection of ſome of my Readers, that the combined Fleet of French and Spaniards, when off Plymouth, in ſummer 1779, which was my firſt cruize at ſea, were over-run with a contagious fever, which made them leave the Channel. It is probable, that every Spaniſh Fleet will ſhare this fate on our coaſts. But there are not more than four months in the year, that they could venture up Channel; and at a time when we are dreading *invaſion*, it may be uſeful to make the moſt of this fact.

fection. We have always thought it of conſequence to engage the minds of a ſhip's company when expoſed to a fever, and when it cannot be done by the neceſſary duty, ſomething elſe ſhould be ſubſtituted. To this head ought to be referred ſome of the means of prevention which have been deviſed at different times, ſuch as charms, amulets, &c. The vinegar of the four thieves has probably been of uſe in this manner.

It is in the abſence of ſtronger impreſſions that fear ſeems to favour the action of contagion; hence imaginary fears of taking the fever are ſometimes converted into reality. I have ſeen theſe apprehenſions ſo ſtrong, that men have been ſent from ſhips as if under the immediate attack of the diſeaſe, becauſe they anſwered every queſtion put to them, concerning the ſymptoms, in the affirmative. The conſequence of this was, that they were put into a fever ward at the hoſpital, and there got the genuine complaint.

We have been informed that perſons labouring under a fit of the gout eſcaped the plague; and we have a right to conclude, that it would have the ſame effect in this fever. But typhus itſelf will ſuſpend ſome affections of the body. I have known the virulent gonorrhœa diſappear for a fortnight, and return with the ſame violent diſcharge, and *ardor urinæ*, as when the fever firſt came on.

I will

I will mention an occurrence, which came within my own obſervation, and which ſhewed that ready recollection that ſo eminently diſtinguiſhed the medical practice of the late Dr. Cullen. In the houſe where I lodged in Edinburgh, my friend, Dr. Gibbons, lay ill of a fever, and was attended by Dr. Cullen. The miſtreſs of the houſe, having overheard that part of our converſation which related to the manner in which Dr. Gibbons had received the infection, was immediately impreſſed with the idea that ſhe would ſoon be ſeized likewiſe. Her fears operated ſo ſtrongly, that ſhe ſaid, next morning, ſhe had now got the fever, and determined to conſult Dr. Cullen. Watching the Doctor with great earneſtneſs, as he came out of the ſick chamber, ſhe put her wriſt to his hand, and begged him to feel her pulſe, for ſhe was very ill indeed. The Doctor, with much ſeeming indifference, walked paſt, and did not even bid her a good morning. Such treatment, to a lady juſt ſeized with a contagious fever, was beyond all endurance. She inſtantly reddened, and grew angry, exclaimed with great vehemence againſt courtly phyſicians, and muttered ſomething about large fees, &c. However, during this increaſed excitement from the ſuppoſed affront, the fever vaniſhed. It broke the chain of ideas that revited the imagination, and like

like a faithful Archæus, ſaw the ſpot which was diſordered, and corrected it. Dr. Cullen, on viſiting his patient next morning, with his uſual complaiſance, aſked the lady how her fever went on? but ſhe was now aware of what the Doctor had intended, and confeſſed that ſhe was cured of her apprehenſions.

I think I have ſeen means, ſimilar to this conduct of Dr. Cullen, employed with much ſeeming ſucceſs, on the firſt ſuſpicion of infection, among timid people.

It has been long a general remark in our Navy, whenever contagion appears, that its earlieſt and moſt certain attacks are among the raw landmen. Theſe, as being ſtrangers to the modes and habits of a ſea-life, are for ſome time aukward and diſpirited, and do not at once get into the method of keeping themſelves perfectly clean. It was obſerved in the Vengeance, that new men who came to fill up the places of thoſe that went to the hoſpital, were generally but a few days on board till ſome of them would complain. Draughts of this kind were received in the ſhip three or four times, while ſhe lay at Spithead; and always with a repetition of this circumſtance, though much attention was paid to cleanlineſs. The ſame thing happened in the Valiant, and it ſeemed to prolong the infection.

When

When infection has been received into a ſhip, ſometime in commiſſion, although the uſual proportion of landmen is on board, it has been found to be eaſily checked, and ſooner expelled, than otherwiſe.

We have more than once ſeen a fever appear among the marines, who are berthed together, without affecting a ſingle ſeaman for ſome time; and if timely attention was directed to the means of prevention, it might be overcome at the firſt.

In January 1790, the Gorgon, of forty-four guns, arrived at Portſmouth, with a number of troops on board, from Chatham, called The New South Wales Rangers, under the command of Colonel Groſe; to which place the ſhip was bound. While ſhe lay in the harbour, a fever prevailed among the ſoldiers, and ſeveral died. Accounts were brought to Admiral Roddam, the Commander in Chief, that the mortality was conſiderable, and the diſeaſe very dangerous. He ordered me to viſit the Gorgon, and report to him the condition of the troops, and the nature of the ſickneſs. I found fifteen or ſixteen men ill of a typhus fever, and one or two with ſymptoms of immediate diſſolution. Upon careful inveſtigation, and inquiries put to the convaleſcents that were walking about, I found that the fever had been brought into the barracks at Chatham,

 where

where they were embodied, by two deserters from the guards, who came from the Savoy prison, and entered into the corps, on condition of pardon. Had these circumstances been attended to at first, this infection might have gone no further. The sick lay in the great cabin of a hulk, alongside the Gorgon, which I requested the Admiral to order to be moved to some distance. This being done, every person with the first symptoms of indisposition were separated, and all communication was prevented. The Lords Commissioners of Admiralty, on receiving my report, were pleased to order me to superintend the people; and every thing necessary to the comfort and recovery of the soldiers, which I thought proper to prescribe, was complied with. In a fortnight from this time, no fresh attacks were known; a few died, but the whole afterwards did well. What I am about to draw from this fever in the Gorgon, is the circumstance of the seamen in the ship being totally exempt from it: not one of them having had the slightest sign of infection. Now the troops lived in the lower deck; and when the ports were shut at night, the exhalations from below naturally ascended through the gratings, among the sailors.

In the Vengeance, very few of the able seamen were affected. But her condition was particular; she had on board not only her own complement of landmen, but a number she was carrying round to the

the Fleet. The infected were alfo fome time in the fhip; and fo late as the 12th of February, when I joined her, eleven were ill in the fick birth; this, with the feafon of the year, tended to prolong the contagion.

When the Valiant received near four hundred of the London's complement, fhe had on board two hundred in perfect health; yet to the London's people was the infection for a long time confined. On the day before fhe failed with the Channel Fleet, a landman came on board as a volunteer. The attacks of fever, for fome time paft, had been very gentle; yet this man received the infection in a few days, and died at fea. He had been brought up to a country life, and by being a ftranger here, and not under the impreffions of accuftomed ftimuli, foon fell a victim to the contagion.

In the Cæfar and, Leviathan, our remark was fully verified. The former fhip received from the London about feventy men; and the latter the whole of her marines. The Cæfar had on board the crew of the Ganges, who had been all turned over, after being twelve months in commiffion. The Leviathan had been in the Mediterranean, and her people were healthy and feafoned: both fhips were under excellent difcipline. In the Cæfar the fever did not extend above thirty cafes; thefe, according to Mr. Seed's report, were almoft

confined to the men of the London. Of the Leviathan's, thoſe ſent to Haſlar, were chiefly marines, and but few ſeamen. Yet theſe ſhips were quickly cleared, even although the Cæſar kept ſome on board for cure.

This circumſtance, of ſhips well diſciplined, and long ſeaſoned to ſervice, being ſo eaſily cleared and ſecured from contagion, was certainly one of the great cauſes of ſo many ſhips in the Fleet being quickly free of the fever communicated from the French priſoners.

In a former part of this work, I have mentioned, that while at Haſlar, ſome very bad caſes of typhus were ſent from the Coloſſus and Robuſt, in Portſmouth Harbour, both of which had lately returned from Toulon. Yet the infection made little progreſs, and was quickly overcome. I do not think, that a ſhip's company, juſt raiſed and mixed, ſtrangers to their officers and one another, and under no eſtabliſhed diſcipline, could have eſcaped on theſe terms of health. It was, moreover, the winter ſeaſon, and by coming lately from a warmer climate, they were the more ſuſceptible of typhus contagion.

How

How CONTAGION *is taken into the Body.*

IT is a point generally admitted among Phyſicians, that the atmoſphere is the *medium* of Contagion, whether it ariſes directly from the ſick perſon, or from cloathes and other articles that have been impregnated with the noxious matter. We have mentioned certain conditions, by which this matter may be rendered more powerful in its operation, by being collected, or more concentrated; and alſo certain conditions of the ſound body, that favour its reception more at one time than at another.

On approaching the ſick bed of a patient labouring under a malignant typhus, if the room is ſmall, and not well ventilated, the ſmell which we have formerly mentioned, becomes very ſenſible. If the patient ſuddenly ſtarts up in bed, or haſtily throws the bed-cloaths from him, it is ſtill more perceptible. To people not accuſtomed to viſits of this nature, the air becomes particularly offenſive; a diſagreeable taſte is excited in the mouth, and frequent ſpitting takes place: unpleaſant ideas at the ſame time are formed, and aſſociated with the recollection of the ghaſtly looks of the ſick man, which cling, as it were, to the memory. If the mind attends feelingly to theſe ſenſations, they lead to others which evidently ſhow the effects of contagion; the change of air does not ſeem to alter the nature of the ſmell; and the taſte of the

mouth is rather more diſagreeable, with dryneſs, even to a ſlight degree of nauſea, and ſome efforts to vomit. A langour, lowneſs of ſpirits, inaptitude to motion, apprehenſion of evil, drawing near the fire, and drooping the head, with a ſenſe of heavineſs of the eyes and forehead, follow next. A creeping ſenſation is felt over the ſkin, which becomes paler and dryer than uſual: the coldneſs increaſes, with now and then a ſlight ſhivering: there is alſo a degree of anxiety, with pains of the ſmall of the back, and limbs, or ſtitches in the ſide and breaſt, as they are often called. The coldneſs on the ſurface and ſhivering, ſometimes ſtop for a while; or are alternated with a tranſient glow of warmth, which ſoon vaniſhes, when the rigours and ſhaking or trembling recur with more violence: even to make the patient graſp at ſomething to ſupport him, leſt he fall down. The countenance now appears more dejected and dull, and the features ſhrink, the face is ſometimes ſuffuſed with tears, and now a confuſion of thoughts takes place. The heart is occaſionally affected with palpitation; and the pulſe fluttering and feeble. Women fall into hyſteric fits; and I have even ſeen men who had the affection of the *globus hyſtericus*, as exquiſite as in the fair ſex. I have alſo ſeen epileptic paroxyſms at the acceſſion of typhus.

Contagion can be often traced from its ſource, to its firſt reception into the body, in this manner,

till

till the fever appears in its full form and character. From cloathing and other ſubſtances imbued with the exhalations from a fever ſubject, the ſame train of ſymptoms follow. Seamen are very often infected in the act of tying the bedding and cloathes of their ſick meſs-mates, when they go on ſhore to hoſpitals.

The period for the fever, or ſymptoms of infection, making their appearance, varies according to the concentrated ſtate of the contagious matter; or the cauſes and circumſtances which favour its action. We have juſt traced it from the moſt early effect; but at other times, days and even weeks are neceſſary to produce theſe appearances in the body.

The diſagreeable taſte of the mouth, the ſpitting, nauſea and vomiting being ſuch early ſymptoms, have induced ſome to conclude, that the infectious matter is received by the ſaliva, taken into the ſtomach, and from thence by the circulation conveyed to the body at large. This way, however, does not appear to me to be the mode of its action: for by throwing out the ſaliva, we ſhould be ſecure againſt it; which we know not to be the caſe. The effects of the poiſon are ſometimes ſo ſudden, as to give no time for this circuitous mode of operation. While the people were unpacking the bale-goods at Marſeilles, they were affected inſtantly: we have ſeen delirium in many perſons, the firſt ſymptom

of typhus; we muſt therefore ſuppoſe, that it acts immediately on the powers of life. We can ſee no objection, why it is not communicated to the nervous ſyſtem through the lungs, independent of any chemical change, which an impure atmoſphere may effect in the blood. As the air conveys the hurtful quality, it is ſurely more reaſonable to think that it acts by the organs of reſpiration, than by the ſtomach or lacteals. The ſickneſs, and anorexia, appear to me ſymptoms of mere conſent of parts, which conſtitute a ſhare of the phænomena of fever, and only ſecondary.

A certain quanity of infectious matter, it would appear, is neceſſary to affect the body with diſeaſe. But I conſider the ſymptoms of fever, as motions of our ſenſitive ſyſtem; excited by impreſſions of the noxious power, that are prejudical to health, and not as efforts of a *vis medicatrix naturæ*; they are only ſigns, that the preſent ſtate differs from the cuſtomary tenor of our habits and propenſities. Now the phænomena of fever, being attendants on very different conditions of body, we have a right to conclude that they are *always* ſymptomatic.

If the impreſſions made on our ſyſtem by the contagious matter, whether breathed or ſwallowed, have not been ſufficiently ſtrong, they induce, either a trifling indiſpoſition, or none. But if they have been ſtrong enough to produce diſeaſe; and if the means made uſe of to overcome them *in*

limine

limine, have not had the desired effect; it beomes a difficult matter to eradicate them afterwards. They seem to occupy the whole attention of the body; their presence constitutes the length of the fever. If they wholly suppress the accustomed actions and habits which we exercise, it is *death*. But if the accustomed motions and actions, which by length of time had been confirmed into habit, should gradually recover their former energy, then the diseased state declines in proportion, till the body at last returns to the vigorous enjoyment of all its appetites, which is *health*. We know nothing of what has usually been called a crisis; and far less of concoction and evacuation of morbific matter.

Treatment of Infected Persons.

If after a person has been exposed to contagion, few or more of the symptoms which have been enumerated take place, there will be reason to expect a fever as the consequence.

It would seem to be the practice of the best physicians, to prescribe for the state of the patient, not with a view to expel the contagious matter from the stomach or body, but to counteract its effects. The bad taste of the mouth, the want of appetite, and sickness at stomach, very naturally indicate an emetic; and this has been

been the moſt general practice. About fifteen grains of ipecacuenha, joined to ſome of the milder antimonial preparations, will anſwer the purpoſe: or, the following formula:

℞ Tinct. ipecac. - - ℥i.
Vin. Antimon. - - ʒiij.
Ft. Hauſtus.

The beſt time of exhibition is towards the evening. The patient ought to be put to bed; and at bed-time, let him take the following bolus or draught:

℞ Pulv. Antimon. - - - gr. v.
Opii purif. - - - - - - - gr. i.
Confect. Aromat. - - Ft. Bolus;
Hora ſomni ſumendus: *Or*

℞ Vin. Antimon. - - - ʒij.
Tinct. Opii. - - - g^t. xxvij.
Aq. Cinnam. - - - - ℥i.
Ft. Hauſtus; h. ſ. ſ.

A few glaſſes of wine made into negus, ſtronger or weaker according to the perſon's habits of drinking, or warm wine and ſpices, may be taken afterwards; and then let him be left to his repoſe.

In the morning, if the bowels are open ſo much the better; but otherwiſe, a gentle doſe of the tartarized infuſion of ſenna, will be uſeful. Though it may be neceſſary to keep the patient quiet; yet his mind ſhould be ſo employed and amuſed,

as

as to divert him from all unpleaſant feelings. The air of the room ſhould be pure, but it is neceſſary at the ſame time, now, and throughout his illneſs, that it ſhould be ſufficiently warm. I think it ought never to be below 60° of Farenheit, or above 68; and often changed. If the weather out of doors permits going abroad, I would recommend it.

It is at this period of typhus only, that preparations of antimony appear to be uſeful. I know not how they act; I conſider them as leſs active ſtimulants, when given in ſmall doſes. The pulvis antimonialis ought therefore to be continued, to the quantity of four or five grains, three or four times a day; and the opiate combined with the laſt doſe at bed-time: wine may be given in proportion to the debility and deſire for it, ſo as to ſupport the pulſe; which ſhould be carefully watched, as by it, we muſt regulate the ſtimulant plan, without carrying it to exceſs, or inducing that debility we wiſh to avoid. When our patient is thought to be free of all complaints but weakneſs, let moderate doſes of cinchona be given, and let him keep warm, uſe exerciſe, amuſement, and a diet nouriſhing and ſtimulant.

How

How to ſubdue Contagion.

If pneumatic chemiſtry has aſſiſted us in explaining the nature of contagion, and the manner it is conveyed from one perſon to another; it alſo teaches us how to weaken its power, ſo as to be no longer dreaded.

The great experience which the late Dr. Lind had on this ſubject, in an hoſpital, better calculated to afford information than any other in Europe, juſtly entitled his opinions to be heard with confidence, and practiſed univerſally. On a branch of medicine, however, always traced with difficulty, and ſcarcely to be known but by its effects, conjecture ſometimes obtruded inſtead of proof, and haſty concluſion in the place of demonſtration; hence we find this celebrated phyſician aſſuming a fanciful hypotheſis for his theory, and on which he builds the whole ſuperſtructure of his practice. The following paragraph may be taken as his text: he ſays, "The cleareſt "idea we can conceive of the manner in which "this infection is communicated, is to ſuppoſe, "there is in all infected places, adhering to certain ſubſtances, an envenomed *nidus*, or ſource "of effluvia, *corpuſcules* or whatſoever infection may "be ſuppoſed to conſiſt, and that as the air is more "or leſs confined, becomes more or leſs ſtrongly "impregnated with them *." In ſome parts of

* Papers on Infection.

his valuable papers on fever and infection, the Doctor appears to be satisfied that *animalculā* had nothing to do with the propagation of contagion; but here he relapses into the old doctrine, and supports it in new terms, and an improved nomenclature. He looked upon infected cloathing to be this envenomed *nidus*, where a new generation of *corpuscules* were multiplied, which gave to the noxious matter an increased virulence, and became more certainly productive of the disease, than when it first issued from the body. That this was his meaning, is abundantly confirmed by all his rules for expelling and purifying contagion. Every substance which he prescribes is with the direct intention to destroy animal life; hence the heat of an oven, fumigations with brimstone, gunpowder, tobacco smoke, boiling vinegar, &c. are his executioners. It was not only to purify cloathes, bedding, and other substances, that these fumigations were applied, but the wards of the sick in hospitals, and the decks of ships, became also subjects for the process.

Heat I consider as one of the most powerful correctors of contagion; it rarifies foul air, or what may be spoiled by respiration in crowded apartments: applied to substances imbued with animal miasma, it will dissipate that, or convert it into an inert mass, so as to be harmless. Whereever there is moisture, it will dry it; and above all, it

it is uſeful, as a general ſtimulus to the body, keeping it warm, and thus fortifying it againſt cold, which ſo evidently tends to diſpoſe it to receive infection.

Of ſome of the ſubſtances uſed in the fumigating proceſs, I have nothing to ſay in praiſe. I do not think that they are harmleſs only, but hurtful. Under the high authority of Dr. Lind's name, they are thought to be the only ſafe and certain means of expelling infection, and have been long practiſed in our ſhips *. When this is to be done in an infected ſhip, but it is often performed in health as a preventive, the people's cloathes, bags, and hammocks, are all hung up or ſpread abroad in the lower deck, in order to be prefectly impregnated with the fumes; the ſcuttles and ports are cloſely barred in, and the tarpaulins cloſely laid over, that nothing may eſcape. Gun-powder, brimſtone, &c. are then burnt below in quantity ſufficient to pervade every corner. This is ſometimes ſo compleat, as to kill cats, rats, and mice, or other vermin in the ſhip. During this proceſs, which is occaſionally continued daily for two or three hours, the ſhip's company is kept aloft; not always in the moſt temperate weather.

* In the Colloquia Maritima, publiſhed in 1688, I find that fumigations were employed to correct foul air: ſee quotations from this book, under the article YELLOW FEVER.

Some

Some officers have a high opinion of the fumigations; yet I have been often aſked, in infected ſhips, how it came that the fever was ſtill ſpreading, though they perſiſted ſo carefully in ſmoaking? The truth was, other means became ſecondary conſiderations; ſo great was the faith in the burning brimſtone, that little attention was paid to the early ſeparation of the diſeaſed. But this was not all; the people being expoſed to the cold on deck, in a ſtate of inaction, were evidently hurt by it. Immediately after the proceſs was finiſhed, freſh caſes made their complaints known, and it ſeemed to haſten the rigours and ſhivering. I have ſeen this practice of ſmoaking continued without intermiſſion for weeks; and when I could not be prejudiced againſt it, have found the contagion go through its regular courſe, and at laſt die away of itſelf. In the winter ſeaſon, when there is danger of the ſeamen ſuffering from the inclemency of the weather, I have conſtantly forbid it. I know no condition of a well-regulated ſhip, that can ſtand in need of theſe vapours.

When a fever of this kind breaks out in a ſhip at ſea, particularly in bad weather, ſhe muſt of neceſſity quit the ſea: but a ſick birth ſhould be immediately fitted for the infected, as far as poſſible from the others, and all communication ſtrictly prevented. A man of war admits of few conveniencies in ſuch a caſe; but the Captain,

under ſuch circumſtances, ſhould have it in his power to order ſlops and bedding, when wanted, from the ſtock of the purſer, that the ſick may be often ſhifted; and ſoap ſhould be allowed, to keep every thing clean that belongs to them. Much might be done by attention to cleanlineſs, in both cloathes and perſon, and it would be a great means of checking infection on the earlieſt diſcovery. Some ſteady old men, who run little riſk of receiving the diſeaſe, ſhould be appointed attendants on the ſick, and furniſhed with every thing neceſſary; ſuch as a few coarſe cloths for wiping the patients after being waſhed every morning; ſpare night-caps, after the hair has been cut, and ſhirts and frocks made into ſheets *.

On ſuſpicious ſickly men coming into a ſhip, the ſurgeon ought to examine them attentively; about the places they came from; whether any fevers or other diſorders prevailed in the neighbourhood, and alſo in what veſſels they were conveyed from the out-ports to the ſhip. An in-

* I have been told, that the new Medical Board of the Navy, have it in contemplation to ſupply every ſhip with a certain quantity of bedding. I would recommend the mattraſſes to be covered with leather, or canvas painted, ſo as to exclude moiſture from the hair within; by which means they would neither imbibe infection, or be difficult to be cleaned. This method of conſtructing mattraſſes would be a great improvement in all hoſpitals. With theſe articles we muſt expect ſoap, coarſe towels, &c.

fected

fected ſubject ought to be ſent out of the ſhip with all ſpeed, and every thing belonging with him. There is no certainty in any means of expelling contagion, but removing the infected. The ſlighteſt caſe ſhould not be left on board for ſome time, till there is an aſſurance that the ſtrength of it is ſubdued. I have ſeen a man kept in the ſhip, becauſe he was thought to have the fever in a milder degree, and being a uſeful man, which has prolonged the infection for weeks. There ought, therefore, to be no deviation from this rule. In the preſent improved diſcipline of our Navy, I have never found it a very difficult buſineſs to eradicate an infectious diſeaſe, provided my directions were duly complied with. The ſyſtem of duty in our ſhips at this moment, is ſo perfect in all its branches, that I have nothing to add. The whole preſervative means are compriſed in, the immediate removal of the ſick, cleanlineſs in perſon and cloathing; fires, to keep the people, in the winter ſeaſon, warm; avoiding cold and moiſture, fatigue and intoxication, and keeping the ſhip dry, and properly ventilated. In an infected ſhip, an active and ſenſible officer will be employed in airing his people's bedding and cloathes; diſtributing orders to the inferior officers, to ſee that their diviſions of the ſeamen are clean in their perſons, that their dirty things are waſhed twice a week, and that they have cloathes ſufficient to keep them warm. If the weather is cold, we

ſhall ſee him ordering the decks to be dry rubbed with ſand, or ſcrapers, and waſhing with water laid aſide; his men will not be allowed to go aloft when it rains, or into boats when it blows hard. To give the decks a cleanly appearance, they will be well white-waſhed fore and aft, above and below: and laſtly, to combine in his method the advantages of pure air with warmth, the ports will be opened to leeward, and only the ſcuttles to windward; or the whole fitted with ſaſhes of bunting, and ſtoves lighted in every part that can do good. To all theſe means of preſerving health, amuſements will be found to keep the minds of the people in action; violins, and other inſtruments of muſic, being common in moſt of the King's ſhips, are uſually employed in the evening, and the ſeamen and landmen are ſeen joined in the dance*. A phyſician of a fleet, who may viſit a ſhip

* It has often occurred to me, that a band of muſic would be extremely uſeful in a ſhip, even as a preſervative of health. In the laſt ſhip where I was ſurgeon, the Vengeance, Captain C. Thompſon, and the Officers, purchaſed muſical inſtruments; and five or ſix men, who were performers, made into a tolerable band. The people were regularly piped to dancing every evening: and I always thought it but juſtice to allow it a ſhare of credit in the extinction of the typhoid contagion. To a ſet of human beings, confined for months together within the gloomy walls of a ſhip, the exhilarating powers of muſic could not fail to produce the moſt ſalutary effects. Our immortal Shakeſpeare very juſtly thought that man fit *for crimes*, who could not be touched with the concord of *ſoft ſounds*.

In

a ſhip under the command of an officer of this deſcription, though armed with a diploma, and with the chemiſtry of the elements at his fingers ends, will find that very little has been left for him to do; whether his doctrine of prophylactics, be the *vinegar of the four thieves*, or the fumigations of modern phyſicians, under the ſcientific appellations of Sulphurous Gas, Muriatic Acid Gas, or Nitrous Gas.

"Spithead, July 2, 1796.

"SIR,

"THE ſubject of a contagious Fever, on board the Niger frigate, at Spithead, having attracted the attention of the Lords Commiſſioners of Admiralty, to order a particular proceſs for the purification of the ſhip; I have to requeſt you will be pleaſed to communicate theſe remarks to their Lordſhips, as I conſider the welfare of the Navy deeply intereſted in the diſcuſſion.

In like manner I would pronounce a phyſician ſtrongly fettered in the craft of *technicals*, that excludes from his *Hygeine*, the exciting influence of melodious notes, or the agile movements on the "*light fantaſtic toe*." I am myſelf paſſionately fond of both; and nothing gives me more pleaſure than to ſee it extended to the ſeamen.—This naturally makes me aſk, why a regiment is allowed a band more than a ſhip of the line?—Give your Tars, O my countrymen! their amuſements; and while you enjoy your's on ſhore, remember who they are that give them ſecurity!

"Immediately on being informed of the Niger's ſituation, I could not help thinking that the fever had been brought from ſome of the veſſels, which were lately boarded on the coaſt of France. Captain Foote ſince tells me, that ſome bedding had come to the Niger from a brig that had been employed in carrying troops from Breſt to Bayonne.

"In reporting the condition of the Niger to Vice-Admiral Colpoys, I conſidered it neceſſary that ſhe ſhould be detained, till the diſpoſition of the contagion ſhould be ſufficiently known, or ſo far ſubdued, as not to endanger the lives of the people. From the caſes that were examined, I dreaded no mortality; and from the compleat mode of diſcipline eſtabliſhed under Captain Foote and his officers, with the careful ſeparation of the infected, I did not doubt of the ſpeedy extinction of the fever. They had judiciouſly practiſed every means that have been found moſt ſucceſsful: and a concern for the health of his people, truly paternal, has directed Captain Foote's endeavours on this occaſion.

"A pamphlet containing Dr. Smyth's addreſs to Earl Spencer, has juſt been put into my hands. I now conceive it to be my duty to make ſome obſervations on the manner in which it ſeems to have engaged their Lordſhip's attention*.

"There

* "An Account of the Experiment made at the deſire of the Lords Commiſſioners of the Admiralty, on board the Union

"There can be but one opinion, that pure air is fitteſt for animal life: therefore the correction and expulſion of a tainted atmoſphere in ſhips, have always employed a ſenſible officer. Fires are occaſionally put into the holds and wells, to diſlodge *carbonic acid gas*, or in plain Engliſh, fixed air. Another foul air, our officers are in the habit of expelling, is *azote* or *mephitic air*: this is performed by opening ports and ſcuttles, unlaying gratings, and putting down wind-ſails. The fixed air of the well, is produced by the decompoſition of water and vegetable matter, as the timbers of the ſhip. The azote is of animal origin, and abounds, whenever the air is polluted, by breathing animals; as, between the decks of a ſhip. It derives its name from being fatal to animated nature. Now this azote is the baſe of nitrous acid: they only differ in the degrees of combination with oxygene, or what was formerly called dephlogiſticated air: and in proportion to the quantity it attracts of this principle, it is called Azote, Azotic Gas, Nitrous Gas, Nitrous Acid, Nitric Acid. In ſhort, Dr. Smyth's Preventive, is the very ſubſtance that every intelligent officer is hourly employed to drive from the decks of his Majeſty's ſhips.

"In

Union hoſpital ſhip, to determine the effect of Nitrous Acid, in deſtroying Contagion; by J. E. Smyth, M. D. F. R. S. &c. *Johnſon, London*, 1796."

"In Doctor Smyth's proceſs, when the nitrous acid is converted into gas, it loſes a portion of pure air; it is now an elaſtic fluid, under the title of Nitrous Air, or Gas; in this ſtate it will remain for ſome time, till it again, by chemical attraction, recovers its pure air: which it will do ſooner in proportion to the purity of the atmoſphere, when by its ſpecific gravity it will fall to the deck, Nitrous Acid; or to be more intelligible, it is turned to *aqua fortis*; for the nitrous gas is nothing elſe but the fumes of aqua fortis. Azote, the baſe of the nitrous gas, which I am now ſpeaking of, being of an animal nature, is produced in greateſt quantity, during the putrefaction or decompoſition of animal matter: by expoſure to the air it paſſes from azote, through all the degrees, till it becomes nitric acid; when by throwing pot-aſhes to it, it becomes ſalt-petre; witneſs the gun-powder ſyſtem of the French democracy, where all animal ſubſtances have been put in requiſition for the formation of nitre. Had Captain Foote, of the Niger, inſtead of duly ventilating his ſhip, with a change of air, ſhut every port and ſcuttle, laid the tarpaulins cloſely over, and ordered every man below, an atmoſphere of azotic and nitrous gas would have been formed, in ſuch quantity, that would have ſuffocated his whole crew in the ſpace of a few hours.

"If what I have aſſerted be matter of fact, how improper muſt it be to introduce this lethalic

vapour

vapour between a ſhip's decks, that ought to be occupied with pure atmoſpheric air. The concluſion to be drawn from it, does not reſt on my authority; it is well known to every chemiſt.

"The idea that has given birth to theſe experiments, is evidently a remnant of the exploded doctrine, that contagion originated from *animalcula*. Hence a diſtorted philoſophy ordered us to burn brimſtone, and fire gun-powder in our ſhips: its Protean form, under the nitrous gas, is equally repugnant to chemical truths, as it was before. If ſuch has not been their origin, there is an unpardonable negligence in chemical ſubjects, in a work avowedly held out as confirmed by trial and experiment.

Their Lordſhips have been told, that the bad ſmell diſappears from the uſe of the gas: but any other ſubſtance, as the ſmoke of tobacco, or aſafœtida, that gives a ſtronger impreſſion to the olfactory nerves, will do the ſame thing.—But then it will be ſaid, the ſucceſs on board the Union hoſpital ſhip, proves its utility. I flatly deny, that this appears from the narrative itſelf; there is a deception, from firſt to laſt, in the buſineſs. Among whatever body of men contagion makes its appearance, there will always be found ſome more ſuſceptible of it than others. Thoſe who are moſt diſpoſed from particular cauſes to receive infection, will be firſt ſeized; it

will then extend to others; and there will, at laſt, be found ſome who eſcape it altogether. Even the plague itſelf proceeds in this manner. Now, if any *charm*, *noſtrum*, or pretended preventive, be introduced at the ſtage of infection, as happened in the hoſpital ſhip, Union, it will gain a credit it never merited; and the exemption from the diſeaſe ought to be explained by a very different mode of reaſoning. This has been the tenor of all prophylactic proceſſes, from the vinegar of the four thieves, to the preſent invention. I might produce a numerous train of facts to ſupport further arguments; but they cannot be made ſufficiently intelligible to thoſe inaccuſtomed with medical and chemical diſputation. They will appear when the Medical Records of the Channel Fleet are publiſhed, with a maſs of evidence, on the ſubject of Contagion, greater than has uſually fallen to one obſerver. If ſucceſs ought to give preference to modes of practice, I might appeal to the ſudden extinction of the fever, ſpread from the French priſoners after the memorable 1ſt of June 1794, to two thirds of our ſhips; and in more than thirty other ſhips that have been cleared under my directions at different times.

" It ought to be remembered, that in a clean and well-aired ſhip, contagion can lodge no where but in the bodies, cloaths, or bedding of the people.

people. When we purify, by washing and airing all these articles, or remove them, the sources of contagion are destroyed. Nay, whatever renders the air more unfit for respiration, must also dispose the body more to receive infection; because it weakens the powers of life. I even consider the most agreeable aromatic odours superfluous, because they may deceive our senses of smell, with respect to the state of the atmosphere; which, when pure, and frequently changed, admits of no foreign aid. By these means, the exhalations from infected bodies become diluted by so large a portion of air, as no longer to convey disease*.

"Having said so much, I consider myself bound to explain any obscurity which may appear, should

* Air flues, or pipes, might certainly be constructed, on some plan, to facilitate the escape of the foul air from the decks where the people sleep. When five or six hundred men lay on one deck, the space cannot be always sufficiently ventilated by the hatches; for if it happens to rain, these are occasionally covered with tarpaulins; so that the pure part below must be rapidly consumed. Now the most noxious portion of the air, from specific levity, occupies the highest stratum where the hammocks are flung: small tubes, to communicate with the air aloft, would therefore conduct the tainted atmosphere upwards, as quickly as it was collected; and would admit a fresh draught for a more healthy respiration.—All hospitals, and places where a number of people crowd together, such as assembly-rooms and theatres, ought to be furnished with these conductors for the escape of azotic gas.

their

their Lordſhips think proper to ſubmit my opinions to any authorities competent to decide. They will forgive my intruſion on this buſineſs, while it remains a part of my duty to infuſe into our ſyſtem of health, every diſcovery which the auxiliary branches of medical ſcience may publiſh; while, at the ſame time, I ought to take care that nothing noxious may enter either the air or diet of a ſeaman *.

I have the honour to be,

SIR,

Your faithful humble ſervant,

To EVAN NEPEAN, Eſq. *T. Trotter.*"

Admiralty."

The Lords Commiſſioners of Admiralty were pleaſed to order their ſecretary to tranſmit the above letter to the Commiſſioners for ſick and wounded,

---

* I am obliged to Mr. Burd, ſurgeon of the Niger, for the copy of my original letter; which he took as it was about to be ſent to the poſt; otherwiſe, I ſhould not have been able to give it a place here, having had no time to tranſcribe it.— It was my wiſh, that the Lords Commiſſioners of Admiralty ſhould be acquainted with my opinion, of this proceſs for deſtroying contagion, before the health of the Niger's people could be aſcertained. By this I muſt beg leave to acquit myſelf of any miſconſtruction or pre-poſſeſſion of Dr. Smyth's form.

wounded, for their report; which is contained in the following letter to Mr. Nepean, a copy of which was tranſmitted to me.

"Office for Sick and Wounded Seamen,
July 11, 1796.

"SIR,

"We have received your letter of the 5th inſtant, incloſing one which you had received from Dr. Trotter, phyſician to the Fleet, and ſignifying the directions of the Right Hon. the Lords Commiſſioners of Admiralty, that we ſhould conſider and report to you, for their information, our opinion on the ſeveral matters ſtated by the Doctor, on the ſubject to which it relates.

"We obſerve what we conceive to be inaccuracies in ſeveral parts of the Doctor's reaſoning, ſome of which we ſhall point out to their Lordſhips. He alledges, that the azote, as it is called by the French chemiſts, or phlogiſticated air, as it is called by the Engliſh philoſophers, differs from the nitrous gas, and nitrous acid, only in degree; whereas the former is underſtood to be intirely without vital air, which is one of the component parts of nitrous gas and nitrous acid, and by giving them the properties of acids, renders them eſſentially different from the pure azote. We might farther remark, that this azote is ſo far from being deadly, or even noxious, except in its

moſt concentrated ſtate, that near three fourths of the air *which we breathe* is compoſed of it; and that it is not correct to aſſert, that the azote is derived from the living animal body. For it is conſidered as proved, in chemical philoſophy, that the chief changes which common air undergoes, when it is converted into the above mentioned azote, by the reſpiration of animals, ariſes, not from any addition it receives from animal effluvia, but from the abſorption by the lungs of vital air; which is the other principle component of the atmoſphere, and which, when abſtracted from common air, by breathing, leaves in a ſtate unfit to ſupport animal life. But we judge it unneceſſary to detain their Lordſhips with further details of this kind, as we apprehend this queſtion is to be decided, rather by plain experience, than by ſcientific deduction.

" We agree with Dr. Trotter, as to the great importance of attention to ventilation on board his Majeſty's ſhips, together with perſonal cleanlineſs, which will, without doubt, prevent a poſſibility of the generation of infection. But, for the ſpeedy deſtruction of infection already generated, we are of opinion, that ſomething more than ventilation is requiſite; and that the uſe of fire and fumigations with ſulphur, is the moſt effectual mode of annihilating infection.

" With

"With reſpect to the noxious quality of the fumes of nitrous acid, propoſed to be employed to deſtroy infection, by Dr. J. C. Smyth, we can produce unqueſtionable authority that theſe fumes, when drawn into the lungs, undiluted with common air, are highly noxious. But in the diffuſed ſtate, in which they have been uſed by their Lordſhip's orders, it does not appear, that any conſiderable inconvenience was experienced from them: and whether any bad effect would ariſe from theſe fumes, even when diluted, being applied to the lungs for a length of time, is a fact concerning which we have not yet had ſufficient experience to decide.

"As to the nitrous fumes, in the manner directed to be employed by Dr. Smyth, being adequate to the deſtruction of infection, which fact is controverted in ſuch ſtrong terms by Dr. Trotter, we have already intimated to their Lordſhips our opinion, that the trial on board the Union is not, alone, of weight ſufficient to determine this matter; eſpecially as the mortality among the Ruſſians, and the ſick among the attendants at Deal, where the uſual modes of prevention were practiſed, was leſs than in the Union, where nitrous fumigation was put in practice.

"Beſides the farther trials ordered to be made by their Lordſhips, we have directed one to be made at the Mill Priſon, at Plymouth, and ſhall

continue

continue to embrace ſuch fit opportunities as may offer, of bringing this matter to an unequivocal deciſion.

(Signed) *R. Blair.*

To Evan Nepean, Eſq; *Gil. Blane.*"

Dr. Smyth's proceſs for deſtroying contagion, having been introduced into a ſhip in the Fleet, it was not left for me to remain any longer a paſſive ſpectator of the buſineſs; otherwiſe I might have ſaved myſelf an unwelcome criticiſm. It happened, however, that the fever in the Niger had been completely ſubdued before the uſe of the nitrous gas; the credit of which was ſolely due to the attention of Captain Foote, his ſurgeon, and officers. Captain Foote was not a little hurt when the reſident Commiſſioner of the ſick and wounded came on board this ſhip, to detect the foul air which had cauſed the fever. This gentleman was conducted into every corner of the Niger by the Captain; but the atmoſphere proved to be ſweet to the very keelſon; ſhe was, indeed, a ſhip in that kind of order, where a phyſician would always wiſh to fix his field for experiment; for what depended upon the exertions of officers and men, would certainly be executed; and ſo it proved with the expulſion of this contagion.

In addreſſing the Admiralty on the ſubject, with a deſire to render my language familiar, I have been apparently betrayed into ſome ſeeming inaccuracy, as mentioned by the Commiſſioners of ſick and wounded. I wiſhed to impreſs their Lordſhips with the idea, that this proceſs was really introducing an atmoſphere into our ſhips, which we are conſtantly endeavouring to expel. There is no great difference between azotic gas and nitrous gas; and I contend, that the latter, however diluted by common air, is in direct oppoſition to the purpoſes we intend by a free ventilation. The formation of nitrous acid, is a proceſs conſtantly going on in nature; and whether we ſubſtract the oxygene, the vital air, or add nitrous gas, it is plain that we render the medium in which we breathe leſs fit to ſupport life: hence I uſed the common word, *pollution*. Nay, a captain of a man of war would be acting up to the principle laid down, if he neglected all attention to opening ports and trimming windſails, to keep the gas in the decks as long as poſſible. The definition of this gas is, that "*it extinguiſhes light and deſtroys animals.*" Now, to ſay this becomes harmleſs, when in a diffuſed ſtate, is no argument in favour of its virtues; when reſpired for a length of time, it may have all the bad effects that a ſingle inſpiration would have when it is undiluted. If a perſon takes a ſmall draught

out

out of a quart of water, in which thirty grains of arſenic have been diſſolved, he may feel no inconvenience; but if he drinks more, or a little now and then, death may enſue.

There is one part of this queſtion, that the advocates for this gas, or any other gas, as correctors of an infected atmoſphere, have altogether overlooked. The diſeaſe that generates this infection, is the very offspring of an impure air: the very ſymptoms characteriſtic of it, ſhow the deficiency of vital air in the body, muſcular debility, pale or bloated looks, and hæmorrhages of a darker blood. Some phyſicians of eminence, at the head of them Dr. Beddoes, the celebrated chemical philoſopher, contend, that the cure depends upon reſtoring this loſt principle; and we all know how grateful a pure draught of air is to a typhus patient. Now while we attempt to preſerve health, let us not forget our duty to the ſick. But in the ardent purſuit after theſe factitious airs, to correct contagion round the bed of a fever patient, they ſeem to think of nothing elſe. Dr. Smyth, and his experimenters on board the Union, ſeem to have been ſatisfied, if the ſick men in bed did not cough from the irritation of the gas: nay, while one of them congratulates the Doctor on the immortal honour he will derive from his invention, and he in return, recommends him to the firſt Lord of the Admiralty, both are confident that the

the diseased people received from it much benefit. It appears from the report of the Commissioners of sick and wounded, that they are prosecuting a final determination, on the effects of the nitrous gas. I do not think that it remains to be decided, but is already done, by the united experiments of all chemists. They too, I find, from the opinion they have given of fumigations of sulphur, are supporters of the old theory. If there had not been a pre-conceived idea of the nature of contagion, how otherwise would physicians have ever thought of such agents as they have employed. Gun-powder and brimstone burnt by charchoal, give out gasses much resembling one another. The famous Morveau changed it for muriatic acid gas *: and Dr. Smyth now contends for the superior efficacy of the nitrous gas. The medicine has been changed, but the theory remains the same; and what is a little strange, they keep it in the back ground †.

Notwith-

* Morveau, the celebrated chemist: the last accounts which we have heard of him, was his employment as a naturalist, capering after Bounaparte's army, in Italy. He has probably been more succesful in his new office; a singular appendage to an army!

† Supposing, for a moment, that the exhalations of diseased subjects, which convey infection, were *hydrogene*, whether combined with *sulphurous*, *phosphorous*, or *carbonic acid gas*; nitrous gas,

Notwithstanding the long and extended practice of fumigation in our ships, and at the hospitals, it does not appear to me, that there are any clear and decisive testimony of certainty as to its effects. The good effects of heat, I readily admit. But heat is combined with the fumigation, in purifying cloathes and bedding at our hospitals. Probably, the heat is sometimes not great enough, from inattention in the labourers; because during the period of my four months in office at Haslar,

gas, according to elective attraction, would combine with the oxygene; which it always does, and returns to its former state, nitrous acid, while the infectious matter would remain the same. The experimenters on board the Union ought to have told us, the precise condition of pre-disposition, in all those people who had the fever from the infected Russians: their ages, constitutions, in what part of the hospital they did their duty, whether they attended the worst patients, and also whether those who escaped had not peculiarities of sex, age, temperament, &c. that resisted the contagion. In the extensive practice which I have had in the Fleet, had it been my intention to try any *preventive*, how easily might similar proofs have been laid before the public, to confirm my supposed superior method, when it appears that a practice made familiar to officers, is all the *mighty magic I have used.* I am not a little surprised that Dr. Smyth, in compiling his report, entirely overlooked the judicious alterations proposed by Mr. Menzies: to which every reader, acquainted with medicine, will readily bestow more praise, than to the nitrous gas.—I sincerely wish that it may be the last effort of this kind, to draw the attention of our Public Boards from more valuable regulations to subdue Contagion.

sixteen

fixteen cafes of typhus occured, that could be traced to the bedding, in chronic wards, which had been formerly in thofe of fever patients. But I have always thought it a fair conclufion, that two-thirds of our people, who relapfe after returning to their fhips, owe this fecond illnefs to imperfectly-cleaned cloathes and bedding. In the laft infected fhip of the Fleet, the men returned with their cloathes all dirty. The Captain ordered them to be wafhed; the men rofe early to perform it, when feven were feized with convulfions and relapfes fo badly, as to be fent on fhore a fecond time. Although I attributed the relapfes of thefe men, to cold or fatigue, yet it juftifies my general objections to this mode of purification; and I long to fee more attention paid to the cleanlinefs of our feamen's apparel, than has hitherto been done.

The following quotation fhows that Dr. Lind himfelf, was not altogether fatisfied with fimple fumigations. He fays, "But in prifons, fhips, "or places, where the people cannot be moved, "and confequently a *fufficient* degree of heat can- "not be raifed; the application of fire and fmoke, "to remove infection, may prove *ineffectual*. I "am confirmed in this affertion, by repeated "inftances of infection in fhips, both at fea and "when lying at Spithead, where every method "failed of putting a ftop to it, as long as the

"men remained on board *." It was to anſwer the deſideratum mentioned here, that Dr. Smyth flew to the nitrous gas. Now this quotation exactly agrees with the obſervations of officers, who complained to me of the progreſs of contagion, after all the care and perſeverance in the fumigating proceſs. The plain reaſon was, that theſe officers had ſo much faith in the practice of ſmoaking, that other precautions were very ſecondary conſiderations. Now when the people were moved, large fires and a greater degree of heat and ſmoke would be diffuſed through an empty ſhip; and this was thought to be certain purification. In the mean time the fever would be dying a natural death elſewhere, among the ſhip's company; and after ſome weeks, when extinguiſhed of its own accord, the people would return to their own veſſel, where the fumigations are ſaid to have worked wonders, though the ſhip could have no ſhare in prolonging infection. It is thus, by overlooking collateral evidence, that error and miſrepreſentation are perpetuated.

Having, in theſe remarks, given my ſentiments againſt the theory of animalcules, corpuſcules, or if you chuſe, living atoms, as well as the different noxious gaſſes employed to deſtroy them; I will

* Papers on Infection.

go

go farther, left the question should be evaded by introducing another doctrine. The articles proposed for the correction of contagion, being all substances prone to combination, I would ask the advocates for their use, the following questions:

Is there a chemical union between the gasses, and the exhalations of diseased bodies, as propagators of infection?

Is contagion itself a substance, subject to the laws of chemical attraction *?

If one of these queries cannot be answered in the affirmative, the whole business must be left to conjecture, or future experiment.

During the diffusion of the nitrous gas, between decks, on board the Niger, it excited *general coughing and head-ache*, which did not go off till the people had been some time exposed to the free air. What degree of dilution do they intend to fix in order to render it respirable? Now if such unpleasant feelings were produced among people in health, is there not a degree of unpardonable levity, in carrying on this process, under the very cradle of a man sick of a fever, whose

* The chemical Reader, will be pleased to recollect, that these gasses have not been combined with oxygene, sufficient to give them the character of acids: they do not alter the vegetable tinctures, &c.

caufe, no one dare deny, is very often a deficiency of vital air *.

Vinegar having been long in ufe to fprinkle about the floors of fick chambers, giving out a very grateful flavour, feems to have been the reafon for our practice in fick berths in fhips, to convert it rapidly into vapour, by plunging a large ball of red hot iron at once into a bucket full. A very neat apparatus for this purpofe was fome time

* It is curious to obferve the different opinions of ingenious men, on the nature of Contagion. I now allude to a new idea on the fubject, which I have juft found in an article of the Appendix to the xxth vol. of the Monthly Review for Auguft laft, p. 490. The work is entitled "An Inaugural Differtation on the Chemical and Medical Hiftory of Septon, Azote or Nitrogene, &c. by Winthorp Saltonftall, New York, 1796." The doctrine, it appears, is taken from Dr. Mitchell, profeffor of chemiftry in the Columbia College. He denies that any of the gafeous fluids have to do with the matter of contagion, except the "combinations of *Septon* (azote) with the acidifying principle, and to manifeft itfelf in the feptous oxyd, and the *vapours of the nitric acid itfelf.*" Thus Dr. Smyth's preventive, the *nitrous gas*, that has been faid to bear off the bays from all competitors, is here convicted of being the *guilty agent itfelf!!* Many able arguments are adduced in fupport of this explanation of contagious miafma, which befpeak an intimate acquaintance with chemiftry. The Review has not quoted any means for correcting this kind of infectious gas; but I fuppofe that would be done by admitting factitious oxygene, or the pure atmofpheric air, till the azote was faturated and changed

† to

time ago laid before ſome of the public boards, and introduced into our hoſpitals and ſhips. It conſiſts of a furnace or lanthorn, in which is a lamp; and over it, a little earthern pipkin, in which the vinegar is contained, and by the heat of the lamp, ſlowly evaporated. The ſmell of the vapour is very agreeable; but I would ſay no more for it. It ought to be truſted, like lavender water, on the handkerchief of a belle or a beau. The author of this apparatus, like other projectors, has his theory, which he has been frank enough to publiſh. He ſpeaks of the emanations from

---

to ponderous nitric acid, when it would ſeek the bottom. Thus a ſubject that has long evaded human reſearches, will continue to give birth to new ſpeculations. and is ſtill involved in uncertainty.

Aſk where's the North; at York it's on the Tweed;
In Scotland, at the Orcades; and there,
At Nova Zembla, or the Lord knows where.

Pope.

While theſe ingenious philoſophers are pleaſing themſelves and their readers with their arguments, on diſcovering the nature of Contagion; it will be my duty to furniſh my gallant friends at Spithead with a pure atmoſphere to breathe, as the beſt preventive and ſecurity: putting no reliance on flimſy doctrines or agents, that are held out to correct the poiſon. When a more perfect plan ſhall appear, I ſhall be one of the firſt to embrace it; in the mean time, I may be allowed to wield my little ſtock of chemical knowledge, in defence of my practice; for it has been—Successful.

from the body being of an alkaline nature; and of course his vaporific plan, is to neutralize them. But vinegar itself, evaporated by the common heat of the atmosphere, would seem to give out vital air: in a room where this is going on, there is a manifest change in the state of the atmosphere; a degree of exhilaration of spirits is felt also, and if this is the case, it may answer some of the purposes of ventilation.

I am now very well pleased that this discussion has taken place, because I think our service must be benefitted by it. There is some novelty in it, and may give birth to new ideas, and future reflections, on subjects nearly connected with the health and lives of many of our fellow creatures. It also shows, that in our medical arrangements in the navy, our system is incomplete. Mr. Menzies, in his report to Dr. Smyth, gives a sorry account of the Union hospital ship: it was not only imperfectly fitted for the convenience of the sick, but ready to propagate disease to the healthy. It was very wrong to crowd so many people in a malignant fever into a small space that seems to have been improperly ventilated, and badly attended on the side of the nurses.

If it is found necessary in medical practice, in order to make attendants careful in their duty to the sick, to keep up their confidence in the preservative means against infection; I see no necessity

neceſſity for having recourſe to deception, or the pious fraud of a placebo. Let the nurſes of hoſpitals who attend patients in infectious fevers, be impreſſed with the idea, that if they ſhift the ſick man often, in bed-cloathes and body-linen; keep him clean in his perſon, by frequent ablution, and change the air of the ward very frequently; that it will not only recover the patient, but will infallibly prevent other perſons from being infected. Truth that ſoon decides doubts, will quickly aſſure every nurſe, that this is the only certain method of prevention; and it is the only guide that ought to regulate the conduct of a phyſician.

IN Mr. Kenning's diary, ſubjoined to the artical Typhus, we have a very diſtinct view of the firſt appearance, the progreſs, and extinction, of Contagion, all in the ſpace of ſeven weeks. The ſhip was at ſea, ſo that there could be no certainty of ſeparation; but it was ſummer, which was favourable, and it only ſpread to about fifty-four caſes, including a woman, who received the infection from her huſband. About the fourth week, he remarks, that the general ſymptoms were ſo ſlight as ſcarcely to confine the patient; and after the ſixth week, no freſh caſes appear. The winter ſeaſon,

ſeaſon, would probably have forced this ſhip to quit the ſea, with a ſimilar contagion on board.

It is of vaſt importance to ſervice, to judge with deciſion, on the ſtate of infected ſhips, as by that means our Admiralty may know what they are to count *an effective force.* In the ſpring of the year, or in ſummer, after three weeks from the appearance of the fever, and where the early ſeparation has been duly attended to, I would not heſitate on emergency, to declare theſe ſhips in condition for ſea; becauſe at this time the caſes would be ſlight, and I would expect much good from the approaching warm weather, and probably ſome advantage would be gained by rouſing the minds and bodies of the people to action. In the winter ſeaſon, however, we muſt be more cautious: the attacks are not only more frequent, but relapſes alſo; and then, when you go to ſea, you have not that ſtrong nouriſhing freſh meat, which is required for convaleſcents from a low fever. If the ſhip is going to the warm latitudes, after ſeparating the bad caſes, as we did in the Vengeance, the courſe to the ſouthward will effect what we expect from ſummer in other ſituations: but there is a hazard of meeting foul winds before you gain the warm latitudes, and theſe with rain, might throw you back as bad as at firſt. In giving opinions of this kind, a phyſician muſt be previouſly acquainted with the diſcipline of

of the ſhip, her officers, and it is fit, alſo, that he ſhould know ſomething of the ſurgeon; otherwiſe his prognoſtications may be turned againſt his profeſſional reputation, by his directions not having been underſtood, or purpoſely, or ignorantly diſobeyed. The ſervice alſo may be defeated by raſh and unguarded opinions on theſe occaſions.

MEDICINA

MEDICINA NAUTICA.

TYPHUS.

UNDER the name Typhus, I mean to describe, what has been called Hospital, Jail, Camp, Ship, Low, Slow, Nervous, Putrid, and Petechial Fever. Any difference that has given rise to these names, in the nature of the fever, seems to have been more owing to the peculiarities of constitution, situation, climate, season, habits of life, &c. of the patient, than any real difference in the character of the disease itself. We have seen often, among a number of men living together, the same infection produce a fever, with all the variety of symptoms, with which authors have described fevers under these appellations: such is our apology for the general term Typhus.

It is very certain that this fever is generally spread by contagion; but it is equally certain, that it frequently arises in places where there could be no suspicion of communication with infected persons or cloathing. Such is the low fever

fever that is met with in great towns, among poor people, in low, dark, dirty, ill-aired and damp houſes, towards the fall of the year, and particularly in times of ſcarcity, or during long and rigorous winters. Fevers that have ariſen in this manner, become equally infectious, as if they had ſpread originally from perſons labouring under actual diſeaſe, in other ſituations. The ſame cauſes we have no doubt, have at different times produced fevers in ſhips and tranſports. There are very few of our men of war, that are under that kind of diſcipline now-a-days, that endangers the engendering of contagion; if there are any, they muſt be confined to ſome of the worſt regulated guardſhips. In tranſports however, under the preſent eſtabliſhment, and notwithſtanding many improvements, we have no doubt but contagious fevers often appear from the cauſes juſt mentioned. Theſe veſſels are too ſmall, and generally crowded; ſoldiers with a number of women and children, the whole unaccuſtomed to ſea. If bad weather occurs for a length of time, during their paſſage, or even in port, when they are obliged to live conſtantly below, from falls of rain; diſeaſes of this kind ſoon make their appearance, and ſpread by infection.

In the tenders employed to collect men from the out-ports for the Navy, whether volunteers or impreſt,

impreſt, this fever is very common. Theſe veſſels being partly fitted as a priſon, for ſecurity, are not the beſt calculated for health. At the beginning of a war, the idle and profligate are either impreſſed, or come to the regulating officer to enter; all deſcriptions are therefore mixed together in the ſame deck. Many of them bring, from their hiding places, the ſeeds of contagious diſeaſes in their cloathes, which are ſpeedily extended to others. No method has yet been practiſed to cloathe theſe people; and they often ſleep for weeks upon the boards without a bed: this, joined with the crowded ſtate of the tender, never fails to render them ſickly, if the paſſage happens to be long, and the weather bad.

Receiving ſhips, on their preſent eſtabliſhment, are alſo very liable to foſter the powers of contagion. We trace infectious fevers more frequently to them, than to all other ſources; witneſs the account given by ſome of the Orion's people. Beſides the new-raiſed men ſent from tenders, all recovered men from hoſpitals are ſent hither till their ſhips return to port, or till they are otherwiſe diſpoſed of. No regular diſcipline is likely to be preſerved for the ſecurity of health, among people of ſuch different orders and deſcriptions; the ſeeds of contagion are therefore ſpread among them, before they are detected.

I have

I have already narrated the firſt train of ſymptoms that indicate infection; but they vary in different conſtitutions, both in their manner and time of appearance. Slight ſymptoms of indiſpoſition, ſcarcely noticed by either the patient or his friends, are ſometimes the harbingers of this fever. A langour, and inaptitude to motion, rather than pain of the extremities; being more ſenſible than uſual to external cold; heavineſs of the eyes and forehead, rather than head-ach; yawning, dejection of ſpirits; ſleep diſturbed, and not refreſhing; appetite impaired; and diſagreeable taſte and ſmell; are among the moſt early ſymptoms of typhus.

At other times, the attack is more rapid and violent; with great depreſſion of ſpirits, even to fainting; vertigo, palpitation of heart, convulſions and delirium. The hyſteric affections, or *globus*, as it is called, and fits of epilepſy, are frequent; but I have not obſerved that they prognoſticated a more dangerous diſeaſe.

The *globus hyſtericus*, was a very common ſymptom, among the Iriſh landmen, in the Vengeance, and alarmed ſome of them with the dread of inſtant ſuffocation.

The ſenſation of cold, on the ſurface of the body, in ſome caſes continues for a length of time; but in others wears off in a few hours, and is alternated with heats, that ſeldom produce moiſture

moiſture on the ſkin, and ſweating. The ſkin itſelf ſoon acquires a ſallow hue, and is dry and ſhrivelled. The ſenſation of cold is not however a conſtant attendant of the acceſſion; I have ſeen many, where no rigour was perceptible.

When the feeling of coldneſs on the ſkin is in a greater degree than uſual, the ſhivering and ſhaking of the body ſeem to be in proportion; the colour diſappears from the countenance, and the cheeks and lips are pale or livid. Theſe ſuccuſſions of the body indicate the vaſt loſs of muſcular power: every muſcle is more or leſs agitated by this particular kind of tremour, as if each fibre that compoſed them acted for itſelf, and no longer ſubſervient to voluntary motion.

The appearance of the tongue is various; ſometimes it is moiſt, and other times parched and foul, with, or without thirſt. The breath is frequently ſo diſagreeable, that the patient conceits the bad ſmell to riſe from ſomething elſe: the diſcharge of mucus from the noſtrils is now and then totally ſtopped. A brackiſh taſte is felt in the mouth; or what has been diſtinguiſhed by the taſte of copper: there is a conſtant nauſea and uneaſineſs at ſtomach, that approaches to vomiting. With theſe ſymptoms, there is an oppreſſion about the breaſt, with a difficult reſpiration, anxiety, and ſighing.

Acute

Acute pains reſembling rheumatiſm, are felt in the limbs, loins, ſhoulders, and breaſt.

The eyes are dull, or inflamed, the pupil dilated, ſuffuſed with tears; and the whole countenance exhibits the look of affliction in both body and mind.

The pulſe, at the beginning of this fever, in the ſpace of a few hours, will occaſionally vary conſiderably. It is weak, quick, tremulous, and intermitting; but at other intervals, more ſtrong, full, equal and regular. The muſcular action of the arterial ſyſtem partakes of the general debility; indicated by this irregular and variable pulſation at the wriſt, palpitation of the heart, and throbing of the temporal arteries.

When thoſe rigours or chills, alternated with heat, and ſuccuſſions of the body which uſher in the fever, have diſappeared and ſubſided, the patient is left in a ſtate, more or leſs approaching to ſtupor; and from which the diſeaſe has derived the name of *typhus*.

Some anomalous ſymptoms are occaſional attendants of this fever; ſuch are, catarrhal complaints, and ſome others indicating pulmonic inflammation, The difficulty of breathing has been ſo conſiderable, and tightneſs acroſs the breaſt, with acute pain, that veneſection has been unguardedly practiſed, and repeated even to the

S third

third time, but with manifeſt diſadvantage. I have frequently been taken to the bed-ſide of the patient, and informed that he was labouring under peripneumony, when a very few queſtions, and the appearance of the ſick man, ſoon gave me a different opinion of the diſeaſe.

The fever with which the London was infected, had many ſymptoms reſembling thoſe of pulmonic inflammation; and it certainly, in a number of caſes, was taken for pleuriſy. Catarrhal complaints are alſo liable to deceive us: the effects of contagion are often taken for a common cold at firſt, becauſe the indiſpoſition ſucceeds to the expoſure to weather, by which means the opportunity is loſt, of putting a ſtop to the diſeaſe in its earlieſt ſtage. But it is only in the hands of inexperienced, ignorant, or inattentive obſervers, that a fever of a contagious nature can ſlide on without being detected. For the ſame reaſons, I have ſeen patients with petechiæ upon them, ſent to Haſlar with the ticket marked, meaſles: a caſe or two, from the ſame error, were alſo ſent on board the Charon hoſpital ſhip.

In ſome bad caſes of the typhus, which occurred among our people, after communication with the French priſoners, there ſeemed to be a greater quantity of the biliary ſecretion, than what was uſually met with, in fevers which appeared in the winter ſeaſon. The weather was extremely

tremely hot at that time; and probably the ſyſtem of the *vena portarum*, partook of that peculiarity which affects it in warm ſeaſons and tropical countries. But this not being always the caſe, I can give no reaſon for the appearance of jaundice, under other circumſtances of the weather: I have often ſeen the eyes and ſkin, with the urine, as deeply tinged by the bile, in typhus, as I have remarked it in the yellow fever of the Weſt Indies.

The fever among the worſt caſes which I examined in the Portugueze ſhips, was diſtinguiſhed more by the tremulous motion of the tongue, *ſubſultus tendinum*, *dyſphagia*, and *ſingultus*, than is uſually met with among our ſeamen.

The ſymptoms which I have ſo far deſcribed, and which generally appear in the firſt three or four days, I would call *the firſt ſtage of Typhus*: becauſe this diſtinction will lead to very important regulations in the practice.

The *ſecond ſtage* of this fever, or what I would call *the ſtage of Stupor*, is that ſtate in which the patient is left, after the rigours, &c. have totally ſubſided, without any particular pain of any part.

It is marked by almoſt univerſal muſcular debility, and little deſire of exerting it. There ſeems at times, ſuch a want of attention to ſenſative motions, or external impreſſions, that the patient would periſh, from inanition, were he not urged

to take nouriſhment. He commonly lies on his back; ſtarts up when ſpoke to, as if ſurprized, and requires ſome time to recollect himſelf before he can give diſtinct anſwers to what has been aſked. The ſleep is diſturbed with dreams, and not unfrequently, ſuddenly terminated, when the countenance exhibits ſtrong ſigns of horror and agitation. Muttering is alſo common in ſleep; and the appearance of being buſily employed in particular affairs. In people endued with greater ſenſibility of the nervous ſyſtem, ſigns of grief are expreſſed, by weeping, ſobbing, palpitation, and ſometimes convulſions. The taſte is altogether obliterated, and the fur on the tongue becomes brown and black: the tongue is alſo tremulous, often dry; eruptions, turning into little ſcabs, appear about the lips; they are frequently included among ſigns of convaleſcence.

During this extreme degree of debility, the frequency of the pulſe is ſometimes ſo conſiderable, as not even to be counted.

The ſpots on the ſkin, petechiæ and vibices, which ſo frequently attend typhus, appear at different periods of the diſeaſe. I have never conſidered them of ſo much importance as ſome writers have done: they occur occaſionally in very mild caſes, and are wanting in others of the greateſt danger.

Sir

Sir John Pringle, in his Diſeaſes of the Army, mentions an unpleaſant ſenſation on the end of his finger, which continued for ſome minutes after feeling the pulſe of the patient. He was at firſt inclined to refer this to the force of imagination, but found that others made the ſame remark. Some authors have repeated this feeling in their account of the ſymptoms, but whether only copying, or confirmed by their own obſervation, does not clearly appear. For my own part, nothing of the kind ever occurred to me. Surely nurſes or attendants, in moving and lifting the ſick, would ſometimes take notice of this circumſtance: it, however, has never been told from their evidence. It appears to me to have originated from aſſociating the dread of infection with the touch of the diſeaſed ſubject, and is altogether fanciful. When viſiting fever-patients, whether in the hoſpital-wards, or in the ſick-births of ſhips, it has been my cuſtom to feel the pulſe of many, that I did not expect to learn any thing from, and to paſs others where I knew it to be of no conſequence. What I have moſt cautiouſly avoided, is breathing immediately over the patient. But even that precaution will be often in vain: I have met with many ſick, who ſtart up in bed, as ſoon as I approached, ſeemingly in ſurpriſe, and throw the bed-cloathes from them, or put their mouths cloſe to mine. I cannot however forbear mentioning

a practice with ſome medical attendants, whether phyſicians or others, of keeping at a diſtance from the patient while they examine him, or aſk him queſtions. But a typhus patient is ſometimes ſo low, that to hear him ſpeak diſtinctly, it is neceſſary to lay the ear to his mouth. If there are phyſicians who think otherwiſe, I envy them not their peace of mind. But a medical attendant, who approaches the ſick-bed of his patient, in this manner a dupe to his fears, and the ſlave of his apprehenſions, appears more like a recorder of Newgate, about to paſs ſentence of death on a criminal, than a man who bears the commiſſion of Providence, and the ſtamp of ſympathy, to adminiſter the duties of his profeſſion, for the comfort and relief of a fellow-creature.

I will now deſcribe ſome of thoſe ſymptoms which more eſpecially indicate danger. The firſt is early delirium, the pupil of the eye dilated and inſenſible: delirium may be reckoned only an increaſed degree or variety of ſtupor; the more early it appears, it ſhows a more aggravated diſeaſe. It has been obſerved ſo ſoon as the firſt attack, or in a few hours, and death has followed on the ſecond or third day. It has been ſometimes ſo ſudden, as to be taken for apoplexy, by attendants not much experienced to the effects of contagion, where a number of men are expoſed at once to its influence.

Hiccups,

Hiccups, and ſubſultus tendinum; the fœces and urine, &c. paſſing off inſenſibly, are ſigns of danger; but I have ſeen patients recover from them all. But the more early they occur, they are the more to be dreaded: an irregular weak pulſe, under theſe circumſtances, is always dangerous.

There are alſo conditions of the excretions of the body, which point out a ſevere diſeaſe. The urine that was before pale, becoming black and grumous, is a bad ſymptom: ſo alſo I conſider hæmorrhages, a yellow-darker colour of the ſkin, with increaſed fœtor of the breath, &c. theſe conſtitute what has been called putreſcency.

Suppreſſion of urine, and difficult deglutition, are parts of the extreme muſcular debility. Deafneſs has not been confounded with a ſtate of danger.

The favourable ſymptoms are, the gradual recovery of ſenſation and perception; often at firſt, known by the patient longing or calling for ſome particular kind of food; the ſleep leſs diſturbed; the tongue becoming moiſt and of a livelier red on the edges, and the pulſe more equal and leſs frequent. But theſe appearances return by ſuch ſlow degrees, that a nice diſcernment is required to turn them at once into favourable omens.

TREATMENT.

The treatment of Typhus in the early ſtage, or during the firſt ſigns of infection, has been already mentioned. This is the period when moſt is to be expected from our art; if we fail here, in ſpite of all our efforts, the diſeaſe ſeems to run a determined courſe, and is protracted to an uncertain duration.

Whatever has been pointed out to us, as indications for the cure of fever, by ingenious phyſicians, appears to me to have been built, more on hypotheſis and inconcluſive reaſoning, than real matter of fact. After an attendance on ſome thouſands of caſes, in all circumſtances and ſituations, diverſified by ſex, age, conſtitution, ſeaſon, and climate, I have no doctrine to offer on the ſubject, that may not be liable to moſt of the objections urged againſt preceding theories. We have, hitherto, no certain method of cure; the nice and intricate phænomena of fever, ſhew that the taſk is arduous, if not preſumptuous.

A febrile ſtate, as it is defined, after a ſenſation of coldneſs, frequent pulſe, increaſed heat, injury of ſome of the functions, eſpecially with ſome diminution of voluntary motion, is found to take place in very different conditions of body. Whether, therefore, the ſubſequent fever be of a low,

or inflammatory nature, is attended with ſome increaſed excretion, or an eruption on the ſkin, is intermittent or continued in its type; ſtill the phænomena which uſher in the diſeaſe, are more or leſs the ſame. It is true, that fevers attended with inflammation of particular parts, have a fuller and harder pulſe, than we find in typhus; with alſo the difference of high-coloured urine, while in typhus it is little changed; yet in both diſeaſes they would only ſeem to be ſympathetic, with a peculiar diſpoſition of body. They are indeed ſo much alike, as liable to be converted into one another; hence Dr. Cullen has given the genus *Synochus*, "intio ſynocha, progreſſu, et verſus finem, Typhus." The fever which precedes the eruption of the confluent ſmall-pox, is exactly of this kind; and at the acceſſion, there is no fixed criterion, by which we can tell whether the future diſeaſe will be diſtinct or confluent. In the hectic of phthiſis, we ſee it regularly introduced with more or leſs chill, ſucceeded by heat: the ſame phænomena take place during the formation of pus, and in ſhort, whenever there is condition of body attended with fever.

In all theſe different genera of fever, we therefore obſerve ſomething peculiar to the whole, and the fact is univerſally admitted. What then are we to ſay produces the phænomena of fever, or what their proximate cauſe?

It

It is no unfashionable way of getting quit of an intricate point in the doctrine of fever, to refer it to the laws of the animal œconomy, as an ultimate fact. We have seen these phænomena of fever, occur in very different states of the body, the forerunners of an inflammatory disease, as well as one of diminished excitement. Would it not, therefore, be right to conclude that these symptoms are nothing else but affections, sympathetic of certain offending powers applied to the system; congenial with it, acting in unison to its feelings, and as naturally excited by them, as tickling the pharynx excites coughing: or irritating the eyes occasions the shedding of tears.

These febrile actions are primarily belonging to the nervous system, and by consent communicated to other parts. The patient often dies in the cold fit of an ague; delirium is frequently among the first symptoms of infection, and almost instant death has been the consequence. Now what we mean by a cold fit, is nothing more than the diminished energy of the brain: stupor and delirium are also owing to this diminished energy, but in a greater degree. The hot stage, is the consequence of the preceding cold one: the debility and sensation of cold continue, till the sensorial power or spirit of animation is sufficiently accumulated, to excite the sanguiferous system and other parts to an increased action, by which

 means

means the heat is reſtored on the ſurface of the body, and the flow of ſweat takes place. But if the powers of life are ſo far depreſſed, and the ſpirit of animation can be no longer recruited and accumulated, then the patient expires in the cold fit: or, by a quantity of ſenſorial power, ſtill fit to preſerve life, but not equal to reſtore the energy of all the functions, he remains in that ſtate of ſtupor, which conſtitutes the ſecond ſtage of Typhus.

We have divided Typhus Fever, into two ſtages: the firſt comprehends the early ſymptoms, or as long as chills, and heats alternating with each other, can be diſtinguiſhed: the ſecond ſtage, is that ſtate of ſtupor that follows; but ſometimes appears alſo, without any previous chills and heats having been obſerved.

I conſider this diſtinction of real practical utility, for it is only during the continuance of the firſt ſtage, that we ſuppoſe the diſeaſe to be capable of cure; we call it *treatment* what applies to the ſecond ſtage.

The remote cauſes of fever, are certain hurtful powers, liable to affect the human body and derange health; which, from laws peculiar to animal life, excite the phænomena of fever, and which in themſelves are only ſymptoms of the diſeaſed ſtate. This diſeaſed ſtate conſiſts of impreſſions received from the remote cauſes, which will

will remain till they are expelled by others, on which the method of treatment depends. This comes near to the doctrine of one irritation overcoming another: the early symptoms of Typhus are supposed to be easily moved by suitable remedies; and are a proof that they make no very lasting impression on the nervous system: but those symptoms that constitute the stage of stupor, show that the usual habits, motions, and appetites, are overcome or forgot, and nothing but a length of time, days, and even weeks, are required to restore them. We support and nourish the body during this inexplicable condition in the best manner we can; and we administer stimulants to preserve and excite its energy, which forms the treatment; but we are ignorant of any medicine that can renew the healthful exercise of the functions, at any period during this stage of the disease.

The cure of an ague by the bark, or other remedies, is to support the healthy actions for a length of time, at least till the period of the cold fit is over; to renew this support for some time, at the proper hour of the expected accession of the paroxysm; and to continue this support till all the actions, motions, and habits of the system, have acquired their accustomed vigour, which constitutes health. The cure of the first stage of Typhus, is analagous to this practice; and whatever has been found useful in the second stage, will

will likewiſe anſwer to this explanation. We are of opinion, that the whole act by the *production* of ſenſorial power.

The ſucceſs of an emetic on the firſt ſigns of infection, has been acknowledged by moſt writers on this ſubject. The effect, however, has been differently explained. It has generally been accounted for, by evacuating the contents of the ſtomach, and freeing that organ from any morbid irritation. It has been thought by ſome great authorities, to act by expelling the contagious matter from the ſtomach, which, they affirm, there generates the fever. The good effects which we have experienced from emetics, have been equal to thoſe recorded by other phyſicians; but we ſuppoſed at the time, that under certain circumſtances, they were ſingularly ſucceſsful. I ſhall narrate them. The vomiting ought to be free; ſo as certainly to evacuate the whole contents of the ſtomach, without however, endangering any pain of that viſcus. It is eaſily excited by a grain, or a grain and a half of tartarized antimony, joined to fifteen or twenty grains of the powder of ipecacuanha. It is preferable to give the vomit in the evening, becauſe, by ſleep following quickly to the operation of the medicine, unpleaſing ſenſations are avoided; and it protracts the recurrence of the rigours. When the ſtomach feels perfectly ſecure againſt farther retching, a gentle doſe of the pulvis antimonials combined with opium;

opium; or a draught made with vin. antimon. to ſixty or ſeventy drops, with thirty of the tinct. opii, ought to be taken at bed-time, and followed by a few glaſſes of generous wine, wine-whey, or negus, with a bit of biſcuit or toaſted bread. If theſe are diſagreeable to the ſick, ſome other more grateful food may be found, but it is neceſſary that the ſtomach ſhould not be left empty, after the vomiting. The heat of the chamber, or ward, ought to be equal to our ſummer heat. Next morning, our patient ought to make an early breakfaſt, on what he is accuſtomed to eat: if free from feelings of coldneſs on the ſurface, or other febrile languors, he may uſe the cinchona, in either tincture, powder, decoction, or infuſion, with a glaſs of wine at intervals. If, however, ſlight rigours return, with want of appetite, he had better go on with the antimonial medicine, under the ſame directions as given with the treatment after infection. The dinner ought to be at the uſual hour; and if he is in the habit of drinking wine, in the ſpace of two hours he may be allowed to finiſh his pint. The food ſhould be light and eaſy of digeſtion; at the ſame time, it muſt be of that kind that the appetite will prefer. Although the deſire for food might be ſufficiently good, yet in meat as in wine, the indulgence is meant to ſupport the body effectually, without endangering that langour and debility,

debility, which are the certain followers of exceſs in either. The antimonial and opiate, are to be continued at bed-time; and the bark may be added next day to this method of cure. The ſtate of the bowels is to be attended to.

In warm weather the patient may amuſe himſelf out of doors, in any exerciſe or employment he pleaſes; but external cold ought to be cautiouſly ſhunned during this proceſs, and the uſe of antimonial medicines. The mind ought, if poſſible, to be ſo engaged, as never to be allowed to brood over its own feelings, or to re-call any unpleaſant aſſociation of ideas. The remembrance of a friend or relation in the ſick-bed, from whence infection was communicated, is apt to renew former impreſſions; the rigours return, and ſickneſs and nauſea follow.

In the treatment of the early ſtage of fever, or even at the firſt ſigns of infection, Dr. Lind every where lays great ſtreſs on the uſe of bliſters. He ſays, "when a patient came into the hoſpital in the evening, and had a bliſter applied, he was always better next morning:" this continues to be the practice at Haſlar indiſcriminately. I believe, ſince Dr. Lind's time, no writer on the ſubject had added his teſtimony, in ſuch general terms, in favour of bliſtering. Much of the ſucceſs which he attributed, I apprehend, may very eaſily be reſolved by another reaſon. When a ſailor in fever

fever is ſent on ſhore from a ſhip to an hoſpital, from a gloomy ſick-birth on board, into the clean and well-aired bed of a ſpecious ward, with an attentive woman to nurſe him; if any ſenſe of his ſituation remains, I think the tranſition he undergoes, could not fail to make him better: if he has no ſenſes left, it is almoſt enough to reſtore them. But I can very well ſuppoſe, that bliſters may be uſeful: the abſorption of a conſiderable quantity of cantharides from a bliſtered ſpot, may, as a general ſtimulus, affect the whole body; and it may be ſo permanent too, as to excite the ſyſtem a ſufficient time to reſiſt the diſeaſed actions: my own obſervations, however, do not juſtify this concluſion.

Dr. Lind's practice of bliſtering in fevers, remained in its full force when I joined Haſlar Hoſpital; but the cuſtom was too indiſcriminate to be deemed rational, and it was continued, out of reſpect to his authority, by the whole medical gentlemen of that eſtabliſhment. The once celebrated James's powder was adminiſtered at the ſame time, but lately changed for the pulv. antimonialis of the London Pharmacopeia. Lind was ſpare in the uſe of his cordials; probably he was afraid of truſting the exhibition of wine to the nurſes, who are intruſted otherwiſe with the giving of medicines; and what I conſider an unpardonable defect in the inſtitution.

In

In local pains, ſuch as thoſe of the breaſt and ſide, we have ſeen bliſters followed with ſpeedy relief.

After the operation of the emetic, we have often joined ammonia with the opiate: in caſes where there ſeemed more than uſual torpor, and depreſſion of ſpirits, I have thought it more effectual than any preparation of antimony.

Of a febrifuge power reſiding in antimony, our obſervations and experience do not enable us to ſpeak in confirmation; nor do we ſuppoſe, that ſuch a power is to be found in any other medicine whatever. The quality it has been ſaid to poſſeſs, of determining the blood to the ſurface of the body, and thereby removing the conſtriction of excretories, and ſoftening and relaxing the ſkin, are only proofs of its exerting a ſtimulant power. During its uſe the patient ſhould either be kept warm, or lie in bed, and drink moderately of diluting liquors. This method renders it leſs liable to act on the ſtomach and bowels. It is only in the firſt ſtage of Typhus, that this medicine appears to be uſeful: we have no doubt, when taken as has been directed, it has had very conſiderable effects in our practice. After having produced full vomiting in the firſt inſtance, I think the milder preparations only ſhould be continued. When the tartarized antimony has been well rubbed with magneſia or chalk, which I

 ſuſpect,

ſuſpect, abſtract a part of the acid, while it is exhibited, their powers together are much like the effects of James's powder, or the antimonial powder of the diſpenſary. Such has been our practice in counteracting the early ſymptoms of infection, and in curing the firſt ſtage of Typhus.

The ſecond train of ſymptoms, are thoſe which attend the ſtupor, and are chiefly diſtinguiſhed by the loſs of muſcular power, more or leſs dilirium, and other ſigns of debility. Hence, lying on the back; the loſs of voice; the tremulous motion of the tongue on putting it out; indiſtinct viſion; want of perception; muttering to himſelf; catching and picking the bed-cloaths; moaning, ſighing, weeping, ſometimes laughing; difficult deglutition; paralyſis of the ſpincter muſcles; tremors; convulſions; ſyncope on being raiſed upright: ſingultus; cold ſweats, as they are called; grangrene of bliſtered parts, of wounds, and ſometimes of the extremities; hæmorrhages, intolerable ſtench of the breath and excretions: the ſkin duſky or yellow, petechiæ, vibices; vomitting of a black matter; the ſtomach rejecting every thing immediately as ſwallowed; profuſe diarrhœa; dark coloured urine; glaſſy appearance of the eye; the eye-balls fixed, ſunk; the countenance ſhrunk, lengthened, ghaſtly, and diſcoloured; the inſide of the mouth, and tongue, black and parched; the mouth drawn aſide, and tongue

tongue hanging out; deafneſs, or hearing very acute; the jaw fallen; immobility of the joints; watchfulneſs, or conſtant ſleep; heaving of the breaſt; rattling of the throat; pulſe felt only at intervals; *conclamatum eſt.*

The treatment of this ſtage of Typhus has been almoſt confined to ſtimulants. In books on the ſubject, however, we do not meet with much ſatisfaction in the ſelection: little diſcernment is ſometimes to be found in giving to one article a preference over another; and the exhibition of the whole ſeems to have been too often left to indiciſion, or a random practice. Phyſicians have particularly fallen into this error, from viſiting their patients at too long intervals, by whieh means they have been unable to judge of the effect of their medicines, and the report of the whole has been unfortunately left to ignorant attendants, or nurſes.

The only indication in this ſtage of the fever appears to be, to ſupport the body by the nouriſhing and ſtimulating articles of diet and medicine, that are moſt grateful to the ſick, that ſit eaſy on the ſtomach, that procure refreſhing ſleep, recruit the ſpirits, and that do not exhauſt by any indirectly debilitating effect.

We ſhall firſt mention the articles which belong to diet. It is not eaſy, at all times, to ſuit the deſires and unaccountable longings of the ſick;

 but,

but, if poſſible, they ought to be indulged; even to the moſt out-of-the way articles, if I may uſe the expreſſion. While they can chooſe for themſelves, it is preſaging a favourable iſſue. A young man, about eighteen years of age, after ſixteen or ſeventeen days confinement in bed, and juſt beginning to ſhew ſigns of convaleſcence, diſcovered the firſt return of recollection and appetite, by calling for a beef-ſteak from a beat bull. A common beef-ſteak was immediately got ready; but he was aware, from its being got ſo ſoon, that it could not be what he wanted. The carrier, however, that went to a market-town, at the diſtance of fifteen miles, was ordered to bring one when he returned. Of this the patient eat heartily, and reliſhed it as much as if he had got his deſire. His appetite for other kinds of food was progreſſive, and he recovered apace.

The diet ought to be always nouriſhing; and as ſolid animal food is ſeldom wiſhed for, before convaleſcence, broth made from beef or mutton, with the fat ſkimmed off, and a little acidulated, with the juice of lemons, or even port wine, or claret, is, of all ſpecies of cooking, the moſt eligible. To this broth, may occaſionally be added, ſome grateful aromatic, ſuch as mace, cinnamon, nutmeg, ginger, or even common pepper. Analogous to this broth, are all animal jellies, but weaker nouriſhment, ſuch as that of

calves

calves feet. It may be well imitated at ſea, when there is no freſh meat on board, by the common portable cakes of ſoup. Theſe cakes of ſoup ought to be diſſolved in the boiling water as ſoon as it is moved from the fire, but they ought never to be boiled with it, which renders the whole unpleaſant, and gives it the taſte of glue.

The ſlightly fermented juice of oatmeal, called ſowens, to which wine, and a little ſpice, are added, we have often ſeen acceptable in a ſick-birth; and it ought to be a conſtant article in ſick diet, at ſea.

When milk can be procured, muſtard whey may be uſed as a change from other articles. It is, when properly made, a very grateful ſtimulant; and is one of the beſt ſubſtitutes which I am acquainted with for purgative medicines, as it will generally keep the bowels open, without ſeeming to do ſo, ſo gentle is the operation.

When light puddings, cuſtards, &c. are reliſhed, they may be ſafely indulged in. They are nouriſhing, and eaſy of digeſtion, without any hurtful quality.

The thirſt is beſt quenched by fruit, ſuch as oranges, apples, gooſeberries, currants, raſps, prunes, melons, &c. They have the advantage of being pleaſant, and ſharp to the taſte; and, if they do not diſorder the bowels, which they are apt to render too lax, they may be uſed *ad*

 libitum.

libitum. When theſe cannot be procured for drink, diluted wine, negus, porter, bottled ale and ſmall beer, cyder, perry, &c. are generally very acceptable in this fever.

Having enumerated theſe articles in the dietetic method of treatment, I have to regret, that too few of them are to be met with in our hoſpitals. In one, which I have had ſome acquaintance with, it has been told to me, that to fever patients, not leſs than twenty guineas were expended *per diem*, for Dr. James's powders, upon an average, for a whole long war; yet, ſuch a delicacy as a piece of roaſted meat, a pudding, a jelly, or a cuſtard, has never been ſeen within thoſe walls! Thoſe phyſicians, who can cure diſeaſes which ſpring from miſery and want, without articles of nouriſhment and ſupport, muſt have an unbounded confidence in the wonder-working powers of medicine. The relief, however, which the braveſt of the human race, the Seamen of Great Britain, have obtained, by a contrary treatment, has made me a ſceptic on the ſubject.

This argument may be extended to ſome charitable inſtitutions in great towns, where putrid fevers are frequent. The account of the poor family, as given under the head Contagion, is a melancholy proof. I never ſaw a corporation-dinner, but theſe diſeaſed and miſerable creatures

came

came into my mind. When leaving Newcaſtle, at Chriſtmas 1792, I addreſſed the Governors of the Diſpenſary, on the ſubject of a dietetic department; and was informed by ſome of them, that it ſhould meet with their warmeſt ſupport: the fate of this addreſs has not come to my knowledge. This Inſtitution took its riſe from the benevolent exertions of Dr. John Clark, and Mr. John Anderſon the ſurgeon; the former is the celebrated medical author. The patients of this charity are now viſited by all the phyſicians, with the moſt punctual attendance; they are, moreover, men high in profeſſional character. In point of ſubſcription, it is nobly ſupported; the town itſelf abounds with affluence, and is noted for charity and the Chriſtian virtues. If it ever ſhould be my fortune to return, when I have diſcharged my duty to my Sovereign, my Country, and her Defenders, I ſhall not fail to revive the ſubject.—But to our purpoſe:

The body ought to be waſhed all over every morning, with water about 50° of Farenheit. This may be done with a ſponge; but I prefer a clean towel, which is to be dipped in the water, and rubbed over a piece of ſoap, to make it more effectual in purifying the ſkin from any perſpirable matter. After this operation has been attentively performed every morning, the body and bed linen ought to be ſhifted; taking care, if the

 patient

patient is very weak and reduced, to move him gently, and to keep him, as much as poſſible, in nearly an horizontal poſture, to prevent ſyncope. I have known a patient expire immediately by much fatigue from unneceſſary motion, and being kept long erect by the officious intermeddling of ignorant attendants, or obtruſive viſitors. If the ablution, or waſhing of the body, and the ſhifting, is rightly performed, for it conſtitutes one of the niceſt duties of ſick-nurſing, the patient will feel himſelf enlivened and recruited; ſometimes diſpoſed to take nouriſhment, which is frequently followed by refreſhing ſleep.

The medical attendant at every viſit ſhould be very careful in examining and watching the duty of the nurſes, and others about the ſick; with regard to the ſtate of the inteſtines, and the urinary diſcharge. I remember among ſome caſes of my early practice in Typhus, under the direction of ſome eminent phyſicians; when from neglect in attending to the evacuation of the *veſica urinaria*, death unexpectedly happened. This ought to be particularly guarded againſt, after the application of bliſters; and, if medicine fails, recourſe muſt be had to the catheter, every ſix hours, or oftener if the patient takes much liquid aliment. This painful ſymptom ſeems to be owing, either to the directly ſtimulating power of the cantharides, or to the torpid or weak ſtate

of

of the ſphincter, or muſcular fibres of the bladder, after the preceding exceſſive excitement from the ſame cauſe. The finer powder of theſe inſects is taken into the circulation, ſeparated by the kidneys, and thus carried to the neck of the bladder by the urine. The moſt effectual remedy in our practice is the miſt. camphoræ, well diluted, and its beſt aſſiſtant is æther in muſtard whey. Camphor is a reſinous ſubſtance, though with ſome portion of gum, not eaſily ſubdued by our fluids: and I conceive it acts by being carried unchanged to the neck of the bladder, where it exerts a ſtimulant power, by exciting the action of the detruſor urinæ, and thus expelling its contents. Acrid glyſters are alſo uſeful, and the turpentines; the warm bath; or plunging the patient ſuddenly into cold water, into which nitre or common ſalt has been juſt thrown, to reduce the temperature, by their ſolution. This acts by the aſſociation of the ſurface of the body with the muſcular fibres of the viſica urinaria.

A regular alvine diſcharge is certainly of great importance in this fever. In the exhibition of medicines, or other articles for that purpoſe, we ought, however, to be very cautious, as their debilitating efforts are to be dreaded and avoided. The ſtools are commonly offenſive, and there can be no doubt of the neceſſity for preventing them to accumulate. Glyſters afford but a partial

evacua-

evacuation: I think laxatives ought to be given by the mouth, if nothing contra indicates this method. They tend, in their paſſage, to excite the biliary and pancreatic ducts, and mildly ſtimulate other excretories in the inteſtinal canals. We have ſeen nothing preferable to the tartarized infuſion of ſenna, made pleaſant by a couple or more tea ſpoonfuls of brandy, or even aromatic tincture of any kind. The medicines for this purpoſe ought, however, to be varied to the ſtate of the ſtomach, and made agreeable to the patient. Their exhibition muſt be regulated by the late preceding evacuation, and not to wait till a longer period of dejection urges their uſe. By carefully attending to this circumſtance, laxatives can be given in ſmall doſes, with ſome certainty in their degree of operation; and by which means the danger from their weakening effect will be very much obviated. We are of opinion, that an eaſy motion ought to be procured every twenty-four hours; and never to extend beyond thirty-ſix.

When a diarrhœa ſupervenes the uſe of laxatives, or purges, or any particular kind of diet, attention ought to be directed to the particular articles which may have induced it. Thus, an exceſs of the ſummer fruits will often have this effect; and a diarrhœa, ſometimes obſtinate to be cured, frequently follows purgative medicines.

Wine,

Wine, abounding with tartar, has alſo this effect. When it ariſes from an exceſs of acid, it may be diſcovered by the yellow colour of the ſtools, from its action on the bile. The wine, or other ſuſpicious liquor, ought therefore to be changed, the fruit muſt be given up, and the acidity muſt be corrected by the chalk mixture, magneſia, bitters, and opium. If opium comes to be rejected, when taken by the mouth, it muſt be given in glyſters, and in large doſes at once, that the diarrhœa may be effectually checked at the firſt outſet. In the remote ſtage of Typhus this complaint ought to be narrowly watched: the debility from it, is ſometimes inconceivably rapid, and the patient reduced irrecoverably.

I ſhall now give my opinion, and the reſult of my experience, concerning bark, wine, opium, camphor, ammonia, æther, bliſters, and ſome other articles employed in the treatment of the laſt ſtage of Typhus.

I have already remarked, that in our opinion, no article of medicine, which has come under our adminiſtration, poſſeſſes the power of reſtoring the uſe of the functions, under any form of preſcription, that we are acquainted with. Much has been written and ſpoke of the efficacy of the cinchona or Peruvian bark, in curing putrid and peſtilential fevers. Authors have, however, thrown out their ideas on the ſubject ſo vaguely, that

that at this moment we are left to gueſs, at what preciſe period of the diſeaſe, and under what preſſure of circumſtances, it can be moſt ſucceſsfully adminiſtered. It is true, that ſome phyſicians have told us of their giving it in the early part of the fever; but they have not added, in the ſequel, that it cut the diſeaſe ſhort, or prevented the ſtage of torpor or ſtupor; or that this ſtage was cured, either directly, or after a ſmall ſpace from its exhibition. They have neglected to inform us, that they watched the ſtate of the pulſe, at ſhort intervals; or that a return of appetite, the recovery of perception, or ſleep, ſound and refreſhing, were the conſtant or general attendants of this mode of practice. Yet there was ſomething very favourable to this method of cure, and the reputation of the medicine, among many of their caſes; for we hear them ſpeaking, in a tone of exultation, at the large quantity of bark which they had been able to throw into the ſtomach in the ſpace of twenty-four hours; often to the amount of two ounces for days together. Yet in none of the caſes on record, when this practice has been carried to its fulleſt extent, have we any fair detail of thoſe ſymptoms which firſt indicate the certain, though ſlow recovery of Typhus patients. Among the greater number of bad caſes which have come under my own care, I have generally found the ſtomach ſo weak and irritable

irritable from the beginning, that to have perſiſted in the exhibition of the cinchona, would have been little better than putting my patient to the rack. The fever, in their hands, ſeems, therefore, to have run on to an uncertain length. But we have ſeen, in numberleſs patients, where bark had been exhibited in large doſes for a few days, till at laſt the ſtomach would be ſo oppreſſed, that the whole has been diſgorged: and, upon examination, not a dram of the ſubſtance could be ſuppoſed to have undergone the ſlighteſt change from the digeſtive proceſs. At a time of the fever, indeed, when the deſire for food is almoſt extinguiſhed, and when the moſt delicate is taken with indifference; does it appear like reaſoning with a knowledge of the pathology of the human body, to ſuppoſe, that the groſs powder of the cinchona, abounding with reſin, can be a fit ſubject, at that period, for the digeſtive organs? Hence we account for its being thrown up after, unaltered, although it had remained for ſome days in the ſtomach. It is not, therefore, a juſt calculation, to ſay that the bark cured every caſe where it was given, becauſe the patient recovered. Yet the average has generally been given in this manner; and the exception applies to other medicines that may have been popular as well as this long extolled febrifuge.

In all ſituations and ſeaſons, where I have ſeen the contagion of Typhus extend itſelf among a

number

number of perſons, the firſt caſes have always been the moſt fatal and dangerous. Now, if we were to compare any method of cure with another, it would be proper to ſelect an equal number, taken ill at the ſame period of infection; even a week's diſtance, will often exhibit a ſurprizing difference in the nature of the ſymptoms. Among a ſhip's company, a regiment, or any other body of peeple living together in a ſimilar way; we have uniformly obſerved, that the attacks of the diſeaſe become gradually milder, till at laſt it ſeems incapable of communicating infection. This point having been clearly aſcertained from long experience, enabled me to give my official opinions on the progreſs and extinction of contagion, with a degree of preciſion, that could only be acquired by a perfect acquaintance with the ſubject. Now phyſicians, in recording the ſtate of health in fleets and armies, ſhould be mindful of all collateral circumſtances; leſt, what they may relate as a ſucceſsful method of cure, ſhould fail in the hands of others, who may try it, at a different ſtage of infection, and when more virulent ſymptoms ſhewed a more dangerous diſeaſe.—But to return to our ſubject.

In mild caſes of Typhus, where the diſeaſe never arrives at the ſtage of ſtupor; or where there are regular remiſſions; I think bark is uſeful, and favours recovery. It has therefore, for a long time, been our practice to confine the uſe of cin-

chona to the mild degree of the diſeaſe, and during the convaleſcence, from the ſtage of ſtupor: with theſe limitations, I think it a medicine poſſeſſed of virtues beyond all eulogy.

Wine, ſo univerſally preſcribed in low fevers, as the moſt grateful of all ſtimulants, has frequently been condemned without reaſon, or fallen into diſrepute, from a careleſs or injudicious exhibition. There are even phyſicians at this day, ſo wedded to ancient theories of fever, as to limit the quantity of wine in Typhus to three or four ounces in the twenty-four hours; while others, with unpardonable levity, are drenching their patients to the amount of five or ſix pounds in the ſame ſpace of time. Theſe gentlemen, it may be ſuppoſed, muſt have occaſionally been wrong: *medio tutiſſimus ibis*: and I ſuſpect, that neither of them had ſufficiently taken to their guide that experience, which is to be gained only by very frequent viſits to the bed-ſide; becauſe the ſtate of the pulſe, and feelings of the ſick man, are the ſure directors whether the allowance ſhould be ſmall or large *.

It

* Eraſiſtratus primo tribus vini guttis, aut quinis aſpergendam potionem eſſe dixit; deinde paulatim merum adjiciendum. Is, ſi ab initio vinum dedit; et metus cruditatis ſecutus eſt, non ſine cauſa fecit: ſi vehementem infirmitatem adjuvari poſſe tribus guttis putavit, erravit.

Cel. L. iv. cap. 11.

It may be juſtly aſked, at what period of Typhus ought wine to be adminiſtered, and by what rules are we to regulate the quantity?

To the firſt part of the queſtion I would anſwer: that wine may be uſed in moſt caſes of this fever, from the earlieſt acceſſion, and in every period of its continuance. There are however exceptions, that ought to be cautiouſly attended to. In ſome conſtitutions, and at particular ſeaſons of the year, ſome ſymptoms of increaſed excitement evidently continue for a few days. A greater degree of thirſt, harder pulſe, fluſhed countenance, higher coloured urine, are the chief appearances; at the ſame time the abſence of thoſe ſigns which more eſpecially indicate debility, ſuch as dejection of ſpirits, and what are called nervous affections, &c. ſufficiently ſhow the difference. Under theſe circumſtances, the good effects of wine are doubtful; and what I conſider a ſtrong contra-indication, the patient takes it with reluctance; and it is followed by an increaſe of the thirſt, and fluſh of the countenance. When theſe ſymptoms diſappear, the exhibition of wine becomes eminently uſeful: I ſhall now mention how that may be determined.

The propriety of a gentle ſtimulus to the body labouring under a diſeaſe of torpor and debility, I apprehend will be very generally admitted. But one that is grateful to the taſte, that communicates

vigour,

vigour, and excites pleaſurable ſenſations; if ſuch can be found in the materia medica, it will be the duty of the phyſician to prefer that. Such a ſtimulus, and with theſe qualities, I conſider wine. There are few medical gentlemen, I dare ſay, who have attended patients in Typhus, that have not remarked the avidity for wine: the eagerneſs with which it is received, and the inſtant ſtrength that it ſeems to inſpire, are equally aſtoniſhing. I have frequently ſeen the cup broke between the hands of the ſick man, in the earneſt graſp to get it to his lips, or gnaſhed between his teeth in the hurry of ſwallowing it. I remember a ſeaman, belonging to the Valiant, very ill of the fever, after having finiſhed his own allowance, ſeizing the bottle of his ſhipmate, who lay next to him, drank the whole at once, and fell aſleep immediately. Having accuſed him next day of irregularity, and robbing his friend, he ſolemnly declared that he remembered nothing of the matter: he had no return of delirium from this time. A black man, belonging to the Robuſt, who lay ſome days in a very doubtful ſtate, but always took the wine with deſire when it was put to his mouth, was aſked, when the confuſion of thought went off, if he liked his wine? replied with great emotion, "O, maſſa, gib im a gallon." On entering one of the wards at Haſlar, one of the Raiſonable's people was ſitting up in bed, with five guineas in his hand, and begged me

with great earneſtneſs, to allow the nurſe to lay the whole of it out for wine. This man had a wavering about him at the time, but which was always mitigated after his doſe. The natural craving for this cordial, induced me to increaſe his allowance to four pints, in the twenty-four hours; it was almoſt the only caſe where my preſcription exceeded three pounds, during my attendance at Haſlar. He had been a week ill in the ſhip; there was a wildneſs in his looks not to be deſcribed, but it always denoted danger; he died three days afterwards, and took his medicine till within an hour of his diſſolution. Hiſtories of this kind, ſhewing the ſtrong natural deſire for wine among typhus patients, might be extended to a very great length; but this propenſity will always be worth the attention of phyſicians.

I have no doubt, but under particular circumſtances, a greater quantity of wine may be proper, and probably ſomething may be determined by the patient's general manner of living, which ought to be taken into the account. It can be always with ſafety increaſed, while the pulſe decreaſes in frequency, or becomes more equal and full. Even the countenance of the patient is ſome criterion to judge by; it partakes of that appearance which we obſerve in the ſocial circle at table; when the exhilirating powers of wine fluſh on the cheek, and ſparkle in the eye. When the lucid interval of

of reaſon continues longer, and the recurrence of delirium prevented, by giving a glaſs or two of wine, we may be aſſured it is doing good. When the ſtimulus has not been too great, but moderate and ſufficient, the ſleep will be ſound, the breathing ſoft, and the pulſe more full. Care, however, muſt be taken, that the ſleep is not protracted ſo long as to endanger the ſinking of the pulſe, by the ſtimulus being too long withheld; it will therefore be neceſſary to wake the patient, in order to repeat the medicine. Even when he is awake, and lying quiet, the wine muſt occaſionally be put to his lips; the tone of the voice will tell the propriety of the draught, or whether it will be taken with pleaſure. It ought to be given from a veſſel with a ſpout, ſuch as a tea-pot; becauſe, for the greater part of the diſeaſe, and when weak and languid, the patient lies on his back, and is unable to bear an erect poſture. So many unaccountable recoveries have come under my own obſervation, that I am never led to deſpair, while the wine is taken down; for I have ſeen it received with emotion, even during the moſt hopeleſs circumſtances otherwiſe.

The wine ought not, however, to be always withheld, when the patient ſeems to have an averſion to it. The acidity of ſome wines will often produce this effect; and when the exceſs of acid in the ſtomach has been corrected and

neutralized, the averſion will be overcome, when a wine leſs ſharp may be reſorted to: a change of wines ought, however, to be tried, before their uſe is entirely laid aſide. This diſlike often affords an opportunity for employing malt liquors, inſtead of the others. I have frequently ſeen porter or beer preferred to wine, and always found advantage in ſatisfying the cravings of nature, and allowing the patient what he liked beſt. Bottled ale, that undergoes a briſk fermentation on drawing the cork, is one of the moſt grateful drinks that we know. After recovering from a low fever, which I had caught from ſome of my ſchool-fellows, when not quite twelve years of age, I was informed, that I had been ſupported entirely by briſk bottled ſmall beer, refuſing every thing beſides that was offered. It was in vain that the attending apothecary urged me to take his white powders, which I ſuppoſe were the famous fever-powders of Dr. James: by theſe means the effervefcing ſmall beer of an old lady in the village, got the credit of my recovery. Sydenham has ſomething to this purpoſe. Cyder is alſo, on many occaſions, highly reliſhed by fever-patients; its natural ſharpneſs and briſkneſs, when poured from a bottle, render it grateful. It is alſo leſs apt to clog the ſtomach than malt liquors, and as poſſeſſing a vinous ſpirit, has moſt of the advantages of wine.

The

The practice of giving malt liquors, was introduced at Haslar while I officiated there. There are many to bear testimony of its effects. It was began at first, from a few of the soldiers belonging to the 19th regiment, under Lord Moira, calling for it with singular intreaties. About this time, these men had shown symptoms of recovery; and I consider this longing for malt liquor, as a pledge of returning appetite. They had, probably, in health, been accustomed to drink porter or ale; it might, therefore, be trusted as a strong indication of those propensities, which are associated from habit, with a state of health. At the same time, there was not that desire for wine, which they had expressed a day or two before; and on this account, likewise, I was the more disposed to indulge them. Two or three pints of strong beer, were generally given in the day: the feelings of the sick, were the best proofs of its good effects. They all agreed, that it did them more good than any thing; because it was given at a time, when the strongest desires of nature called for it. This beer was brought from the taphouse, at private expence; but Mr. Taylor, the apothecary, furnished us, afterwards, with bottled porter, which is one of the best ingredients in the diet of a convalescent, and never failed to strengthen them quickly for duty.

In the Charon's hoſpital, at different times, we have had two or three patients, to whoſe taſte, both wine and malt liquor were diſagreeable: yet rum punch was reliſhed, and was taken in due quantity, with all the beſt effects to be expected from wine: we ought, therefore, to vary the liquor to the taſte and deſires of the ſick, and never to deſpair, while he will receive it in any form.

Nil deſperandum, Baccho duce, et auſpice Baccho.

The late Mr. Kerr, ſurgeon of his Majeſty's yard at Portſmouth, informed me, that when a very young man, and ſurgeon of the ſhip, with Captain Boſcawen, afterwards the Admiral, he received the infection of this fever from the people on board. Having been moved into a cabin in the wardroom, for the benefit of pure air, extremely reduced and very low ſpirited, he roſe from his bed, and in the abſence of his meſsmates, ſeized a bottle of wine from the table which they had juſt left, the whole of which he drank. He ſlept ſo long afterwards, that he was deſpaired off; but awaked in due time, refreſhed and invigorated in a manner, not to be deſcribed. He had, during his illneſs, often aſked for wine, which was as often refuſed, under the idea that it would hurt him, from its heating quality. It was much

much about this time that Sir John Pringle gave it with ſucceſs in the army. Doctors, Gregory and Cullen, at Glaſgow and Edinburgh, entered fully into the practice: we alſo find from Dr. Huxham, that it conſtituted a great part of his treatment in nervous fevers.—Mr. Kerr added, that he perſiſted in the uſe of wine; and to it attributed his recovery from the laſt degree of emaciation and weakneſs of body.

Opium, next to wine, has been generally preſcribed in Typhus. We no longer contend for a ſedative power in this medicine, in any other way than as a ſtimulant, exhauſting the ſenſorial power. The ſame ſymptoms which indicate wine, alſo evince the propriety of opium in this fever. But a phyſician who has been much converſant with the diſeaſe, muſt have remarked, that, under certain circumſtances, a perference may be ſometimes given to the one over the other. It ought to be remembered that wine, as an article of diet in health, and when uſed with moderation, is the moſt beneficial and agreeable cordial that we are acquainted with. Opium, on the contrary, with us, is always an article of medicine, and never reſorted to but in a diſeaſed ſtate of body. While, therefore, the human body is in ſome meaſure accuſtomed to the one, it has ſeldom experienced the other. There is, moreover, a nutritious quality in wine, which opium does not poſſeſs. Neither

of the two ought to be preſcribed, without the phyſician attending by frequent viſits, to watch the effects: but when opium has been given, this is more particularly required. We have ſpoken of the deſire which the patient expreſſes for wine and other liquors; but opium has not been equally acceptable, either to the palate or ſtomach. Opium has peculiar effects on different people: it is not eaſy ſo to regulate the doſe, as to excite a due ſtimulant power, without inducing delirium: I alſo think, that a greater degree of debility follows; both in the ſtate of the pulſe and in the ſtomach, although the degree of previous excitement was apparently the ſame. In my practice, I have generally given opium at bed-time, to aſſiſt the natural propenſity to ſleep at the uſual hour. It is from this effect, that I conſider it a moſt valuable medicine: but care ſhould be taken that the doſe may not increaſe the debility we wiſh it to cure; or induce ſickneſs and vomiting, which it is apt to do next morning. Many of the precautions we have given, when ſpeaking of wine, will apply to opium.

In urgent caſes of Singultus, Diarrhœa, or whenever there is acute pain of any part, I have recourſe to opiates.

Except in the Dyſuria of Typhus, I have not witneſſed much good effect from camphor. It appears to me, from many trials, to be a ſtimulant

not much ſuited to this kind of fever. It alſo affects ſome perſons very differently from others: I have ſeen it induce a degree of ſtupor, truly alarming, in a young woman, by a moderate doſe.

I have already mentioned ammonia, favourably in ſome ſymptoms of the early ſtage; and I have thought it uſeful in convaleſcents when joined to the cinchona.

Æther, in ſome ſituations, I have ſeen uſeful. When there are any troubleſome nervous ſymptoms, as commonly expreſſed, as tremours, palpitation, &c. joined with opium, it acts powerfully in giving relief. To check vomiting, it is alſo of benefit. The ſpirit of vitriolic æther differs little from æther itſelf, and may be conſidered a weaker ſtimulant. For theſe kind of ſymptoms I have alſo tried caſtor, muſk, oleum animale, and aſafœtida, and often with advantage. Pure brandy will ſometimes check vomiting, when every thing elſe fails.

Some remarks have already been made on the practice of bliſtering. In local pain, I muſt admit their utility, but cannot go ſo far as others have done in its recommendation: but pain, in moſt parts, is more quickly relieved by opium. When applied to the head in delirium, I have often been diſappointed in bliſters; but not ſo much as to urge me to condemn their application altogether.

In

In this fever, though evidently attended with great debility, I have frequently ſeen caſes, where I had ſtrong ſuſpicions of an inflammation of the brain or its membranes. It conſiſts, in a ſtate of ſtupor, from which the patient frequently ſtarts up, with an appearance of ferocity in the countenance, a fluſhing of the cheek, the eye rather turgid and inflamed. Although the pulſe leads ſo little into the nature of the ſymptoms, yet theſe appearances contra-indicate the uſe of wine and other ſtimulants, which ſeem to render the ſick man more reſtleſs. What I have obſerved to give much relief, is ſhaving the head, applying cloths dipped in vinegar or ammonia acetata over the ſcalp. It is probable, that the cold produced by the evaporation of the fluid, acts as a ſedative, and diminiſhes the action of the blood veſſels.

It remains for me to ſay a few words concerning Relapſes. They may be defined, a renewal of the diſeaſed actions, from particular cauſes, before the body had been in condition to reſiſt them. Cold and fatigue are the moſt general cauſes of relapſe. They muſt often happen to the poor, among whom this fever ſo generally prevails; more eſpecially as the beſt means for recruiting health, and gaining ſtrength quickly, are beyond their reach. The ſame obſervation applies to the

the ſailor and ſoldier, with the addition of hard duty and expoſure to the inclemency of weather. The continuance of bark, for a certain time, with nouriſhing food, and in full quantity, to which ought to be added wine for a limited ſpace, and then the ſtronger malt liquors, as ale and porter, are the beſt preſervatives of health: exerciſe and warm cloathing are a neceſſary part of this plan.

The medicine required after Relapſes, muſt be regulated by the general method of treatment in Typhus. The antimonial preparations will form part of the cure, ſhould the diſeaſe be uſhered in by heats and chills: otherwiſe we muſt have recourſe to what has been found uſeful in the ſecond ſtage.

Such has been our general practice in Typhus. If it has exhibited little that is new, it will at leaſt teach thoſe who have had leſs experience, ſome cautions in the uſe of former medicines. They will, therefore, have the advantage of beginning where I leave off. It has been my ſtudy to ſee my patients often, in order to watch the effect of my preſcriptions, which I think to be more neceſſary in this diſeaſe, than has been uſually thought: Let me not, now, be condemned by thoſe, who will not give themſelves equal trouble to be informed. My laſt appeal, muſt be to facts collected at the ſick bed, where I have patiently and

and faithfully done my duty, undiſmayed with the dread of catching diſeaſe from my patient.—How I have always eſcaped infection, I cannot tell: "But God tempers the wind to the ſhorn "lamb."

Mr. KENNING's Diary of a Fever that appeared in the Invincible, in July 1795.

EARLY in July, ſome gentlemen in the cock-pit were taken ill with Fever: the ſymptoms were thoſe of a mild remittent, and gave way to the uſual treatment; viz. emetics, antimonials, and the bark. There were three or four that complained, but were nearly well about the 9th, when one of the ſailors was ſeized with chills, head-ach, and nauſea, with quick pulſe: he took an emetic, and hauſt. anodyn. h. ſ. *.

July 10th. Another taken ill; the ſymptoms appear more violent: he took antim. tartar, gr. iſs. natron vitriol, ℥ ſs. which vomited him and procured two ſtools. The other patient is ſtill feveriſh. Pulv. antim. gr. vj. ft. in bol. 4ta. q. h. ſ.

11th. The patient who complained on the 10th, is to-day worſe; his ſtomach is very irritable

* Mr. Kenning does not, with his uſual accuracy, mention by what means this contagion was brought into the ſhip.

with

with frequent inclination to vomit. Mift. falin. hora fomni. Tinct. opii. The other is nearly the fame. Repetatur bol. antim.—One added to the lift.

12th. Three complained this morning. I now perceive that a Contagious Fever has made its appearance in the fhip; and every precaution is taken to feparate thofe who are ill from the fhip's company. Rep. med.

13th. Two added to the lift, in whom the attack is violent; the fkin hot, pulfe quick, headach, naufea, tremour of the tongue when put out, and a fenfe of cold down the fpine. Let each take an emetic: bol. antim. nocte.—Thofe firft taken ill are delirious.—Opp. emp. cantharid. inter fcap. Let them drink plentifully of gruel, with Nitre. T. Opii. h. f.

14th. Four complained this day; the attack much the fame as in thofe laft mentioned: there is no perceptible remiffion, but confiderable exacerbation towards evening. They continue to take pulv. antim. and nitr. occafionally laxatives, and opiates at bed-time. One in delirium is worfe to-day; has a great averfion to any liquid touching his lips *; is fo uneafy as to make it neceffary to confine him in his hammock.

* Hydrophobia, a fymptom frequently met with in this fever. *T. T.*

15th. One added to the liſt. I find that the antimonial medicines do not produce any moiſture on the ſkin, or abatement of the ſymptoms. They now begin to take cinchona in vin. rub. opium at bed-time, and wine and water for common drink.

16th. In general worſe: petechiæ appear on the neck, back, and breaſt, of three; two of whom were thoſe taken ill on the 13th, the other on the 12th: two, who appeared to be well laſt night, were ſeized with frantic delirium about one o'clock: they were walking under the half-deck, the place appropriated for convaleſcents. I rather ſuſpect they had grog from their meſsmates.—Cont. med.—Three added to the liſt.

17th. Petechiæ appear on others: three ſtill delirious. Repetatur cinchon. cum vino. porter or cyder for common drink, being plentifully ſupplied by the Captain. Thoſe in delirium to have their heads ſhaved, and freſh bliſters: the urgent ſymptoms in ſome are, difficulty of breathing and deglutition; in one, ſubſultus tendinum: hæmorrhage from the noſe, in one who was taken ill on the 11th.

18th. Two added to the liſt: comatoſe ſymptoms prevalent with ſix: the one mentioned with ſubſultus tendinum, worſe; dilatation of the pupils; in the evening low muttering; delirium in four. Rep. med. difficulty of breathing relieved by the bliſters; the bowels in all are regular: one vomited the cinchona, gave him an infuſion of

quaſſia,

quaſſia, gentian and ginger in port wine: pe-techiæ appear on the neck and breaſt of one, that was taken ill on the 15th; ſlight hæmorrhage from his noſe, diſtenſion of the alæ naſi, with exceſſive tremour of the tongue. T. opii h. ſ.

19th. Exceſſive debility prevails; dilatation of the pupils the ſame, with ſubſultus tendinum et floccorum collectio.—State of the liſt this day, nine very ill, and twelve in a favourable way.—The caſe mentioned as worſt, is apparently verg-ing to diſſolution, paſſes his urine inſenſibly. Miſt. camphor and T. opii, to thoſe who are worſt; drink as before.—One taken ill.

20th. Nearly as yeſterday: one added. There is a conſiderable degree of fatuity attending pa-tients in this fever, though otherwiſe, not very ill. John Brady, mentioned as being ſo ill yeſterday, has been got out of his hammock, and well waſh-ed all over with cold ſalt water, rubbed dry, and put into a clean bed; took vin. aromat. fervid.—William Tirry, another that has been very ill for ſome days paſt, is conſtantly covered with a greaſy ſweat; his ſkin clammy, and a conſtant flow of moiſture from his eyes; paſſes urine and fæces involuntarily. Miſt. camphoræ. At night all have wine, porter, or cyder.

21ſt. John Brady appears better ſince the ablu-tion yeſterday: Tirry is worſe, mouth black and dry, his tongue conſiderably enlarged, a circum-ſtance common with many others: one that ap-peared

peared perfectly well for three days, was airing his bedding, and was attacked with a violent ſpaſmodic affection of his breaſt, which continued moſt part of the afternoon; he was relieved by æther. vitrol. and opium. One of the convaleſcents was ſuddenly ſeized in the evening with ſevere pains of his thighs, legs, and arms, ſo ſevere as to make him cry out. Opii gr. ij. Comatoſe ſymptoms ſtill continue. Tirry is worſe this evening, hiccup. Miſt. Camp. et T. opii. Deafneſs in one, the firſt that complained. Rep. cinchona cum vino, to all who can take it:—one added.

22d. Thoſe juſt taken ill have little appearance of fever; pulſe nearly natural, and ſkin moiſt; they complain of partial head-ach, and general uneaſineſs: where there is no nauſea or coſtiveneſs, give the bark in wine immediately, otherwiſe, an emetic, and if a ſtool is not procured by that means, natr. vitriol ℥i.—John Brady much worſe towards evening, low muttering, delirium, and groping about, his eyes conſtantly turned up, and the pupils more dilated than before: Tirry's hiccup continues, with convulſive twitchings of the muſcles of his face, mouth quite black and parched, and cannot articulate. Vin. aromat, &c.—The firſt taken ill is conſtantly covered with a recking or ſmoking ſweat, his tongue moiſt and enlarged, has the appearance, as if macerated in water. Miſt. camphoræ et T. opii. He that had the ſpaſm laſt night, is well: the other

with

with the pains, has a return this evening, and relieved by two gr^{s} of opium.—Six added to the list.

23rd. Brady and Tirry insensible; p. scarcely perceptible: Brady died at eleven o'clock, the fourteenth day of his illness; Tirry at one o'clock, the eleventh of his illness: three others are very bad, one of whom passes his urine, and another fæces, involuntarily, who has sub. tendinum with frequent startings, and apparently great oppression about the præcordia; app. emp. canth. sterno. T. opii and mist. camph. vin. aromat.—Peter Reid, mentioned as passing his urine involuntarily, is delirious, p. quick and weak, will seldom take the bark; he is got out of bed and washed with cold salt water, and his bed shifted, rubbed dry, and took vin. aromat. fervid; about an hour after desired to get up, made water, and had a copious stool; at bed time a difficulty of breathing; emp. canth. sterno. mist. camph. et opii.—Five added to the list.

24th. Favourable appearances, except in one, who is insensible; contraction of the muscles of his face, which draws his mouth to the right side; he died about noon, the ninth day of his illness; petechiæ appeared on him the third day, and a slight hæmorrhage from his nose on the fourth. Peter Reid still delirious, though his skin has a more natural feel, and tongue moist; he will seldom take the bark, but drinks freely of wine,

 porter,

porter, or cyder.—Six added to the liſt; the attack ſtill more ſlight; an emetic, and afterwards cinchona in vino ſecundo. hauſt. opii h. ſ.

25th. Four added: John Crawford, the firſt taken ill, continues to perſpire very much, and his deafneſs increaſed; is very fond of cyder, of which he drinks freely; is conſtantly ſmacking his lips, as if taſting ſomething. Peter Reid, as yeſterday: hæmorrhage from the noſe of one of the others.—Rep. med.

26th. Favourable appearances: two added to the liſt.

27th & 28th. Peter Reid is free from delirium, great debility, his appetite tolerable, will ſeldom take the bark; op. h. ſ.—John Crawford nearly the ſame, thirſt inſatiable, drinks ſmall-beer, porter, cyder, and occaſionally cold water; deafneſs continues.—One added.

29th. As yeſterday: two more added to the liſt. The attack is now ſo ſlight, as ſcarcely to confine the patient, but ſtill has the leading features of the ſame fever.

30th. Recovering.—Two added.

31ſt. Four added to the liſt, in two of whom the attack ſeems to be more ſevere than for ſome days paſt.—Peter Reid has a troubleſome cough, takes an infuſion of quaſſia, gentian, and ginger, with port wine, and opiate at bed time.—John Crawford recovers of his deafneſs, continues to be thirſty.

§ August

August 1. John Crawford recovers of deafneſs, and paralyſis of right leg and thigh: the others as yeſterday.—One added.

2nd. One of the women, wife to a man that had been ill, was ſeized this morning with fever; ſhe was fatigued with waſhing the preceding evening: ſhe had an emetic and opiate. Others better.—Two complained.

3rd. The woman ſtill feveriſh, great irritation of ſtomach. Magneſ. alb. in ſp. menth. and T. opii h. ſ.—Crawford's paralytic affection better.—Two added to the liſt.

4th. The woman better. Let her have cinchona e vino.—All the others recovering. This is the firſt day that we have had no freſh attacks.

5th. Some of thoſe who were worſt, troubled with cough, and a thin expectoration. Vin. tonic c. opii h. ſ.—One added.

6th. As yeſterday.

7th. Recovering.

8th. Coughs ſtill troubleſome.

9th. Four added to the liſt: one with ſwelling of the parotid glands, the others partial head-achs, &c.—Peter Reid, mentioned on the 23d ult. as very ill, has been recovering ever ſince; he is ſeized with a ſpaſm in the lower part of the abdomen; opii grs ij. The woman is recovered.

10th. Crawford is recovering from the paralyſis of his leg, deafneſs nearly gone, has a ſwelling of

his legs. Rep. med.—Peter Reid has a return of the ſpaſm; rep. opium.

11th. As yeſterday: the return of Reid's ſpaſm is prevented by opium, previous to the time of attack.

12th. Four complained this morning: vin. tonic et op. h. ſ.

13th. Three added; one with ſwelling of the parotid: Crawford recovers but ſlowly.—The Scurvy begins to make its appearance.

14th. One complains of ſwellings of the parotid; others recovering.

15th. Crawford continues rather weak, though with a tolerable appetite.—Received refreſhments from the hoſpital ſhip.

16th, 17th, and 18th. Every appearance of fever diſappeared. A few in a convaleſcent ſtate.—Scurvy gains ground very faſt.

19th. Sent Crawford to the hoſpital ſhip, in a convaleſcent ſtate.

It has not been thought neceſſary, in the above Extract, to mention the time of diſcharge, of the different patients from the ſick liſt: after the 25th of July, they were nearly in proportion to thoſe who complained.

Dr. Blane mentions, in his obſervations on the infectious ſhip-fever, that "Petechiæ only appear "in the latter ſtage of the diſeaſe, and in caſes "of conſiderable danger." In reſpect to petechiæ,

chiæ, it was otherwiſe in the fever here mentioned, which I conſider, ſtrictly, ſhip-fever. In every caſe in which they appeared, it was at an early period, generally on the ſecond, third, or fourth day, and never after the ſeventh. There is no doubt, but there may be conſiderable danger, when petechiæ appear; but ſeveral patients that were covered with them, recovered: two of the three that died had them.

The three patients mentioned with ſwelling of the parotid glands, had not the leaſt fever. I was rather alarmed at that ſymptom occurring in the decline of the diſeaſe in the ſhip; as Dr. Lind mentions it as a proof "of a violent contagion, though unattended with fever; notwithſtanding that, ſuch as were in this manner ſeized commonly died." Theſe men were not confined, and recovered in four or five days. The ſwelling diſappeared gradually, in the ſame manner that I have ſeen in caſes of cynanche porotidœa, though without any affection of the teſtes.

There was every precaution taken to ſeparate thoſe that were ill from the reſt of the ſhip's company. The half-deck was fitted for the convaleſcents; which place, with the ſick berth, were occaſionally purified with wood fires, and kept very clean. The cloaths of the ſick were hung up in the berth, at the time of fumigation, and carefully aired afterwards.

It may appear rather extraordinary in a ſea

journal, that the ſick, after the ſhip had been ſeveral weeks at ſea, ſhould be ſupplied with cyder and porter of the beſt quality, and alſo freſh proviſions. But ſuch was the humanity and liberality of Captain Pakenham, although his ſtock was large, he left off the uſe of porter and cyder at his own table, that they might be plentifully ſupplied; of theſe articles they were very fond, and uſed them in great quantity. He had, previous to our ſailing, purchaſed a quantity of onions, for the uſe of the ſick; which, with barley and other vegetables, were boiled with portable ſoup, and a piece of freſh mutton, which made an excellent dinner, to thoſe ill, ſometimes to the number of forty. Theſe ſuperior advantages ſecured the cure, and prevented relapſes.—As a further proof of the good effects of the above regimen, in the ſubſequent month, when moſt part of the ſhip's company were ill with Scurvy, thoſe who had been in the fever, were in no inſtance tainted. In obſervations on ſea practice, I think it an object of conſequence, to mention the advantages or diſadvantages of diet.

(Signed)

T. KENNING, Surgeon.

Invincible, Aug. 30, 1795.

MEDICINA NAUTICA.

AGUE.

IT is not eaſy to trace thoſe circumſtances, which occaſionally convert an Intermittent or Remittent Fever, into a continued Type; and *vice verſa.* There muſt, however, be ſomething in their diſpoſition very much alike; for wherever we find Typhus affecting a number of people at a time, we alſo find caſes of the Remittent and Intermittent form. They occur particularly towards the decline of the contagion; and I have looked upon them always as harbingers of its ſpeedy extinction. In the fever which ſpread on board the Vengeance, in January 1793, and continued among the people, more or leſs, for four months, were a number of regular intermittents. There was alſo a large proportion of Agues, among Lord Moira's ſoldiers, who came to Haſlar hoſpital in January 1794. In moſt of our infected ſhips after the 1ſt of June, ſimilar forms of

fever appeared. I could find nothing uncommon in the conſtitutions of the people to modify the action of contagion to theſe ſingularities, nor can I offer a plauſible conjecture on the fact. Does a weaker degree of contagion, produce Remittents and Intermittents? Caſes of this kind, have given birth to the idea, that Agues are infectious. Cleghorn and Clarke, both high authorities, aſſert this: yet I have never ſeen one Ague produce another, where the original one could be traced to communication with the effluvia of marſhes; either in this country, or between the tropics. Solitary inſtances of Ague, are very frequent in King's ſhips. During the late war, while the Berwick was employed in the North Sea ſquadron, Agues occured twice among a conſiderable number of the ſhip's company. The action with the Dutch Fleet, on the Dogger Bank, happened on the 5th of Auguſt 1781; the men that were badly wounded, with a few ſick, were ſent on ſhore, to very indifferently-conducted ſick quarters, at Sheerneſs. The ſituation of this place, ſurrounded by marſhes, renders it ſubject to intermittents: our people were, to a man, ſeized with Agues, either on ſhore or immediately after coming on board. Some of them were very obſtinate, and one or two terminated in dropſy: yet not a man in the ſhip was affected, but thoſe who had been at ſick-quarters. The ſeamen who

were

were but ſlightly wounded, were ſent to the hoſpital ſhip which lay in the harbour, all of whom, returned cured of their wounds, and in perfect health. This hoſpital ſhip lay but a ſhort diſtance from the ſhore, but ſufficient to prevent any bad effects from the wind blowing over a marſhy ſoil *. Circumſtances very much like the preceding, happened in the ſame ſhip, in the Downs, a few months after. The Agues were brought from Deal Hoſpital; a place, at that time, every way calculated to generate contagion, and lengthen diſeaſe. How often did I regret, at that time, that I poſſeſſed neither rank or authority in the ſervice, to correct ſo depraved a ſyſtem of medical diſcipline! I ſincerely wiſh we may hear better accounts from arrangements that have lately taken place.

The intermittent fevers which I have met with on the coaſt of Africa, were confined to the ſeamen employed in the boats. I never had occaſion to uſe the lancet in any of theſe caſes; but an emetic, or a purge, were generally given early, and always with advantage. In ſome, the bark was tried during the whole of the apyrexia; and in others, it was given in half-dram doſes, every half hour,

* Other ſhips having ſuffered by the people getting intermittents at Sheerneſs, ought to have been a reaſon for diſcontinuing ſick-quarters at that port, and truſting the whole to hoſpital ſhips commodiouſly fitted for the ſick.

for

for four hours before the expected paroxyſm. The reſult was uniformly in favour of the latter practice. When the bark was given in large doſes, from the termination of one paroxyſm to the beginning of another, before the rigours commenced, it frequently happened, that the ſtomach was overloaded, and ſickneſs and vomiting were inevitable. By theſe means, the ſucceeding fit recurred with greater violence, and the difficulty of curing it was increaſed. On the other hand, when the cinchona was exhibited a few hours before the acceſſion of the paroxyſm, ſix drams appeared to be more effectual than eighteen taken during the whole intermiſſion, in checking the recurrence of the diſeaſe. After it was ſtopped, it was neceſſary to continue the medicine at the expected period of acceſſion, and to diminiſh it gradually. Only one caſe occurred that did not yield to this mode of treatment. It was a relapſe, from improper conduct on the ſide of the patient: he left us in the Weſt Indies, and I am doubtful that he ever recovered.

Among the Earl of Moira's troops at Haſlar, ſome few Agues were very difficult of cure. The arſenic ſolution, in every caſe in which it was given, failed to give relief: the cinchona after it, was adminiſtered with ſucceſs. Theſe ſoldiers were extremely debilitated, and had ſuffered much from want of diet ſuited to their diſtreſs, as well as the unwholeſome

unwholeſome quarters of a crowded tranſport. There was a neceſſity for allowing them wine in great quantity, and a full diet of animal food to thoſe who could uſe it. Under this regimen, it was ſurpriſing to ſee with what rapidity the cure was completed in ſome inſtances. Relapſes only occurred, when the wine was withheld contrary to my directions: in the caſe of a grenadier, no leſs than three relapſes happened from this circumſtance alone. He was a tall ſlender man, and was much reduced by the diſeaſe; but he had a good appetite in the abſence of the fit, and could eat his pound of meat in the day. There are ſome medical attendants of hoſpitals, that think a ſailor or ſoldier are not much entitled to ſuch delicacies of diet, as a pint of wine. Theſe are gentlemen that ſtep eaſily into their appointments, who have never witneſſed the hardſhips of a ſea-life, or military ſervice; and thus they forget that ſympathy that forms one of the fineſt *traits* in the medical character.

It has been already mentioned, that Agues became very frequent in the Vengeance towards the decline of the contagion. Many of theſe caſes happened at ſea; and from having them ſo much under my own eye, I reſolved to try the full effects of opium in preventing the fit. The greater part of my patients were Iriſh landmen, lifeleſs, timorous beings, and indolent to an extreme, when indiſpoſed.

posed. The moment they felt the first approach of the fit, they were sure to run to the cockpit for relief. The dose of opium was generally administered at the door of my cabin, for there was seldom occasion for them to go to bed in the sick-berth. This was done, either under my own directions, of those of the first mate, Mr. Peter Blair, in whose abilities and attention I had much cause to confide. If the first dose did not bring on some warmth in the space of ten or fifteen minutes, from twelve to twenty drops were given in the same manner. The changes of the pulse and feelings of the patient were often carefully watched. We never gave less than thirty drops the first time, and never needed to go beyond sixty in the space of an hour, for in no case did it fail to give relief in this time. In a few minutes from the exhibition of tinct. opii, an exhiliration of spirits was perceived, which was quickly followed by a relaxation of the surface, the countenance looked cheerful, and and a flush was spread on the cheek. The pulse from being weak, quick and sometimes irregular; became less frequent, full and equal: an agreeable warmth was diffused over the whole frame, and every unpleasant feeling vanished, sometimes in a quarter of an hour. Sleep now and then followed a large dose, but generally this did not happen. As soon as any symptoms indicated another paroxysm, whether on the following day,

or

or not till the tertian interval, the tinct. opii was repeated in the ſame manner as directed in the former fit, and always with equal ſucceſs, ſo that the patient ſeldom experienced much tremor or ſhaking. The ſecond paroxyſm was commonly an hour or two later in the day than the preceding one; and but few inſtances were met with, where any indiſpoſition indicated a third attack at the expected period of acceſſion. The patients themſelves were not a little ſurprized at the ſudden change of their ſenſations, by ſo ſmall a quantity of medicine: they were certainly the compleateſt cures that ever came under my obſervation, and may juſtly be ſaid to have been effected, *certe, cito et jucunde.*

During the intermiſſion, theſe men were ſupported with nouriſhing and ſtimulant food, ſuch as could be procured on board. They had a pint of ſound wine per diem, and ſometimes more if it was required. From my ſtatement of the fever which prevailed in the ſhip, the Lords Commiſſioners of Admiralty had bountifully ordered us to be ſupplied with ſix pipes of wine, and it was the ſafety of many. Thoſe who were in need of it, had a piece of freſh mutton from the table of the Captain or Officers; often a ſlice of pudding, and a baſon of broth, and conſtantly a ſupper of flummery, with a little wine and ſugar. To the portable broth, which was always boiled for dinner,

was

was generally added a piece of mutton, ſent by their Commander, now Vice-Admiral C. Thompſon, who never had a ſheep killed for his own uſe, without ordering a ſhare for the ſick. By theſe comforts of diet, ſome advantage might have been gained by medicine, that could not otherwiſe be expected: and it ſhews how feelingly our Officers attend to the afflictions of their people.

A caſe of intermittent fever, of the tertian form, was cured by wine alone, given immediately on the beginning of the rigours. The wine was adminiſtered in four-ounce doſes, by Mr. Peter Blair, every ten minutes; there was a conſiderable degree of tremour and ſhaking, that did not quite leave him till after the fifth doſe; ſo that twenty ounces of wine ſeemed to have the ſame effect as forty of the tinct. opii. There was no apparent intoxication; but ſleep was ſpeedily induced, and laſted three or four hours, when he awaked perfectly well.

A few intermittents appeared in the ſame ſhip's company, at Prince Rupert's Bay, Dominica; where we went to compleat our water after the unſucceſsful attempt againſt Martinique. The ground at the foot of the hills which ſurround that bay, is low and ſwampy: the whole is covered with trees or bruſh-wood. It muſt occaſionally be an unhealthy ſpot, and the ſource of thoſe diſeaſes which in certain ſeaſons originate from marſh

effluvia.

effluvia. Some officers were imprudent enough to allow tents to be erected for their people to sleep on shore; I believe no diseases were the consequence; but that seemed to depend on the short time of getting their casks filled: it was not a practice to be imitated. Our method of cure was chiefly opium exhibited in the manner related above, and it was equally successful as in the former cases. There were some that required emetics, and seemed to approach more to the continued type. We had also fluxes at this bay; the people got new rum at the watering-place, and some of them nearly expired from intoxication: this made many of them fall asleep on the ground, which was damp, and checked perspiration.

A practice in Agues, nearly resembling the above, has been successful in my hands for some years: there are certainly, however, intermittents to be met with, where bleeding and purging are indispensable; and the use of both opium and bark will be found more effectual after these evacuations. In strong robust young people, who have lived in the country, this remark will particularly apply, and it ought to be attended to.

"Glenmore,

"Glenmore, Sheernefs, 10th Sept. 1796.

"Dear Sir,

"A new mode of curing intermitting fevers, having lately come under my obfervation, I take the earlieft opportunity of requefting your opinion of it: I mean by the application of tournequets to the upper and lower extremities. A very ingenious young man, Mr. Kelly, late furgeon of the Iris, has, I believe, publifhed fome account of it in the Edinburgh Medical Commentaries, which however I have not feen. Upon firft hearing of it, I refolved to make the experiment the earlieft opportunity, efteeming it a very fafe one, under cautious management. Since I joined the Glenmore, I have had two patients in that difeafe. I carefully watched the acceffion of the paroxyfm, and immediately applied a tournequet to the oppofite leg and arm, and kept them on for about fifteen or twenty minutes; taking care to unfcrew them as occafion feemed to require. This procured a very effectual remiffion. In one of the patients the fit was violent when the tournequets were applied: and when they had remained on for about ten minutes, he called out that he was quite well; and by continuing it a little longer, the fit went

went entirely off. In the mean time, the uſual remedies were freely uſed, ſuch as bark, wine, &c. Thus, by carefully watching the diſeaſe a few days, its progreſs was completely put a ſtop to; and a ſlight debility only remained. This is the only opportunity which I have had of making the trial; but I have little doubt of its efficacy in the diſeaſe.

"I can account for its effect only in this way; allowing the paroxyſm to be the conſequence of ſome derangement in the ſyſtem, by debility, the application of the tournequets, in the manner I have mentioned, may cauſe a more abundant and ſpeedy return of blood to the heart; and by that means remove, in ſome degree, the proximate cauſe of the diſeaſe, by giving a temporary ſtrength to the animal powers.

I am, Dear Sir,

Yours moſt ſincerely,

(Signed)

Thomas Grey.

To Dr. Trotter,

Phyſician of the Fleet.

MEDICINA NAUTICA.

THE YELLOW FEVER.

THE ravages which this fatal Diſeaſe have made, during the preſent war, in our fleets and armies, are beyond all precedent: the inſidious mode of attack, and the rapid ſtrides by which it advances to an incurable ſtage, point it out as one of the moſt formidable opponents of medical ſkill. It has offered the ſevereſt obſtacles to military operations, which the hiſtory of modern warfare can produce: the chief victims of its fury being the young, the robuſt, and thoſe free from other diſeaſes; by which means a campaign in the Weſt Indies is now conſidered as little better than *forlorn hope*.

While this mortality is going on among our troops in the Weſt India Iſlands, two authors, nearly at the ſame time, have publiſhed opinions on this Fever, and related a method of cure very much alike, though at a diſtance and unknown to each other. It has been held out in theſe publications,

lications, that the danger of the difeafe was overcome, and a treatment eftablifhed, as fimple and effectual as in a common remittent. The firft of thefe works has been greedily received by the medical world. A peftilential fever appeared at Philadelphia in the month of Auguft 1793, the nature and treatment of which, excited no uncommon difputes among the Phyficians; which, at fuch a time, could not fail to increafe the affliction, as it wrefted from the fick bed one of its laft comforts, the hope of recovery by medical aid.

During this awful vifitation, Dr. RUSH appears like a faving angel, arrefting the arm of death; and we are at a lofs, whether to admire moft, the profundity of his profeffional fkill, or that vigour and benevolence of mind, that bore him up againft the dread of infection, and the calumny of his cotemporaries: in both, he has given a valuable leffon to Phyficians, and will hand his name to pofterity, as one of the greateft models for imitation. To have fled from the fcene, and quitted the duties of the profeffion at fuch a crifis, would have been bafe and unmanly; but to fee his opinions triumph over ignorance and obftinacy, is a victory only worthy of a benefactor of mankind.

Dr. Rufh fuppofes this fever to have arifen from damaged coffee, that was left to rot on the wharfs, and from which noxious exhalations were fpread that firft affected the neighbourhood, and afterwards more diftant parts of the city. A certain

ſtate of the air is however admitted to render this *miaſma* ſufficiently active. We are apt to believe; that a peculiar conſtitution of the weather, was adequate to explain the origin and propagation of this fatal epidemic, without including the influence of putrefying coffee, which at beſt is problematical. Something ought, therefore, to have been premiſed on the topography of the capital of Penſylvania, which we are ſurpriſed to ſee omitted, while ſo many inferior circumſtances are minutely detailed. Is not Philadelphia built on a low plain on the banks of the Delaware*?

The practice of the Sydenham of America, was bold and deciſive, in this fever. It was one of

* Since writing this accouut, a Captain of a man of war, juſt returned from the Jamaica ſtation, informs me, that much about the time when Dr. Ruſh took notice of the putrefying coffee on the wharf at Philadelphia, ſeveral veſſels laden with the ſame produce came to Kingſton from St. Domingo. During the diſtracted ſtate of that colony, this article, with other productions, had been allowed to ſpoil and ferment; the evolution of a great quantity of fixed air, or carbonic acid gas, was the conſequence; and in theſe veſſels, when opening the hatchways, ſuch was its concentrated ſtate, that the whole of the crew, in ſome of them, were found dead on deck. A pilot boarded one in this condition, and had nearly periſhed himſelf. It does not however appear that a Yellow Fever was generated at Kingſton by this coffee: we muſt rather ſuppoſe that theſe people died from breathing the carbonic acid gas, the very ſame kind of air that frequently proves fatal in the wells of ſhips. This ſubſtance might, no doubt, aſſiſt the progreſs

of thoſe opportunities, which nature now and then preſents, as a field for the diſplay of ſuperior talents, to ſome favoured genius; where he burſts aſunder the fetters of ſyſtem, to expand, at large, in a new ſphere; which he peoples with new ideas, and new opinions, peculiar to their Creator. Who would not travel through this vale of tears, amidſt blaſts of contagion, to ſhare the well-earned fame of Dr. Ruſh!

The other publication on the Yellow Fever, is from the pen of Dr. Chiſholm. The fever which he relates appeared at Grenada in 1793, while he was ſurgeon to the hoſpital of the royal artillery at that iſland. The Doctor, however, conſiders this fever as a new diſeaſe in theſe regions, and differing eſſentially from the ſynochus icteroides of the country. Having given his arguments in favour of this diſtinction, he next attempts to prove, that it was an imported contagion; and was brought from the coaſt of Africa by a ſhip called the Hankey, belonging to the ſettlement of Bulam; "where people had been induced to "ſettle, more from the deluſive proſpect of "wealth held out to them, and the *fanatic* "*enthuſiaſm* for the abolition of the ſlave trade of "the moment, than by the deprivation of

greſs of contagion at Philadelphia, becauſe it would render the atmoſphere leſs fit for reſpiration; a phyſician poſſeſſing a talent for inveſtigation, like Dr. Ruſh, could not therefore overlook its effects.

"the means of ſubſiſtence in their own coun-
"try*."

This fever, according to Dr. Chiſholm's account, had, among its peculiarities, ſome of the moſt

* Chiſholm on the Grenada Fever, p. 83. The expreſſions here uſed, partake little of the liberal and enlightened ſpirit of other parts of the work. Why ſhould a Phyſician, the prerogatives of whoſe profeſſion are to alleviate pain, and prevent the evils of human nature, accuſe a nation, impelled by a religious principle to put an end to the ſale of fellow creatures, of a fanatic enthuſiaſm? When a man appears an advocate for the ſlave trade, does he not, by that, diſavow religion, and mock revelation? If we, like the French, ſhould decree death to be an eternal ſleep, ſuch a practice would be conſiſtent; and we might ſcourge, pinch, and torture the fleſh of the African to the laſt drop of blood, for the ſake of gain. But the dread of a *hereafter*, muſt conſtantly keep alive this inquiry, till the decrees of heaven, and the laws of juſtice, are ſatisfied. When I viſited the iſlands in 1793, I was glad to find a general improvement in the condition of the ſlaves, which had ſolely riſen from the diſcuſſion of the ſubject at home: nor did I find a captious ſpirit among the planters, who could reaſon on their ſide of the queſtion with a becoming candour. I was, with twenty Surgeons on the Navy Liſt, at the end of laſt war, obliged, from neceſſity, to ſeek employment in the African trade, becauſe the Navy Board refuſed us ſhips, and we had no half-pay. Some of the number died, and the greater part of the remainder returned broken hearted. I communicated to Mr. Wilberforce what I knew on the ſubject; ſome ſpoke with indifference of my evidence, becauſe I had been but one voyage. Yet on this circumſtance I reſted its validity: had I engaged fully in the trade, the love of money might have entrapped my judgment, as I poſſeſs frailties

§

most prominent characteristics of the Endemic Causus of Dr. Mosely; viz. its affecting new-comers, and being almost confined to whites: from these circumstances we are led to believe, that it was nearly allied to the Yellow Fever.

While the Vengeance lay at St. Kitt's, on the 31st of July 1793, with Admiral Gardner and the homeward bound convoy, I was requested to visit a gentleman on board a merchant ship from Grenada, who was reported to have the plague fever, then raging in that island. I found him in a helpless condition, with many symptoms of the last stage; such as, universal yellowness of the skin, black vomit, and convulsions: I prescribed for him without expectations of success, and supposed that he would die the same evening; the Fleet sailed next morning, and I heard no more of him. In the passage home, on the 22d of August, lat. 33:44°. long. 57:02°. therm. 81:0, a ship lost her foremast in a squall of wind, and received other damage, when the Admiral made the signal for the Vengeance to take her in tow. The ship proved to be the Hankey from Grenada and

 Bulam.

---

frailties like all mankind. I should not have touched on this business, was I not deeply afflicted at seeing a man of great medical abilities, and general science, ranged on the side of a traffic in human beings; there is not another physician in the list but himself: it will go some way in depreciating the eulogy bestowed on the profession by Dr. Johnson, if Dr. Chisholm does not recant his expression.

Bulam. Captain Thompſon ſent carpenters on board, with the neceſſary ſtores to aſſiſt in repairing her loſſes: they remained for three or four days; but no ſickneſs followed, nor had there been any perſon indiſpoſed ſince they left St. Jago. On our arrival in England I was not a little ſurprized to find, that very particular orders had been ſent from the Privy Council, or Secretary of State's Office, to Liverpool, ordering the ſhip Hankey under a ſtrict quarantine, leſt the Bulam fever ſhould be communicated by the intercourſe. This was done in conſequence of the information from the governor of Grenada.

Theſe circumſtances made me curious to read the account given by Dr. Chiſholm. Having peruſed it, with admiration of the author's abilities, and the ſucceſsful, though ſingular mode of treatment, I frequently made it the ſubject of converſation with medical gentlemen lately returned from the Weſt Indies. Dr. Chiſholm tells us, that the ſhips of war on the African ſtation having ſent men to aſſiſt the Hankey, after numbers had periſhed from the fever, received the infection by means of this communication, and that in the Charon thirty died, and fifteen in the Scorpion. Captain Dodd, who at that time had his broad pendant in the Charon, now commands the Atlas of ninety-eight guns in the Fleet: Mr. Smithers, the ſurgeon, is at preſent in the Formidable, a ſecond rate, alſo in the Fleet:

from

from them I have copied the following narrative of their tranſactions with the Hankey.

When the ſquadron under Commodore Dodd came to St. Jago, in 1793, the Hankey lay there, in great diſtreſs for want of hands, having buried above one hundred perſons, men, women, and children, from the time ſhe had been at Bulam. The fever was now overcome: Mr. Smithers ſaw two men that had lately recovered. He preſcribed to the maſter, who was ill of a venereal complaint, and for which he left him ſome mercurials, with directions how to uſe them; at the ſame time he left a quantity of bark. The Charon and Scorpion ſent two men each, to aſſiſt in navigating her to the Weſt Indies. The Hankey, at this port, was cleaned, waſhed with vinegar, and fumigated. No fever appeared in either of the men of war in conſequence of this communication; they arrived at Grenada in perfect health, but did not go to the ſame port of the iſland to which the Hankey went. The Charon at this harbour received ſome ſeamen from the merchant ſhips, then taking in cargoes for England; ſhe had afterwards fourteen caſes of Yellow Fever, of which one died: but it is remarkable, that the Scorpion did not bury a ſingle man during the whole voyage *.

It is probable, from theſe facts, that the Hankey did not import the infection that produced the Grenada

(* See next page.)

Grenada fever; for, after the diſeaſe was worn out, ſhe had a paſſage to make to the Weſt Indies of many

---

"* Liſt of Men who died on board his Majeſty's Ship Charon, between the 22d of November 1792, and 4th of Auguſt 1793, in a voyage to the Coaſt of Africa, and Weſt India Iſlands.

Feb. 18.	Ja^s Coglin	Flux.	An old man very much broke down, and ſeverely troubled with a rheumatiſm; had done no duty during our paſſage to the coaſt; was attacked with flux on the 18th of Feb. and died March 7th.
March 6.	John Bean	Flux.	A mate of a ſlave ſhip that was caſt away on the coaſt, and in the laſt ſtage, was taken on board by the Commodore's deſire, for a paſſage to England; died on the 22d of March, on our paſſage to St. Thomas's.
March 10.	Querra	Flux.	A black priſoner going to England to be tried for murder; died on the 30th of March, at the Iſland of St. Thomas's.
June 22.	Thos Dillon	Fever.	A healthy ſtrong young man, died on the 13th of July, being then on our paſſage to England.

After leaving Grenada on the 4th of June, we had twelve or fourteen men attacked with the Yellow Fever; the infection was brought on board by ſome impreſſed men whilſt at Grenada.

many hundred leagues. It is alſo doubtful how the effects left in the Hankey could produce the fever, for the bedding was thrown away, and what cloathing remained, had been aired, and, probably, had ſcarcely been in contact with the body after being ſick. Mr. Smithers was examined before the Governor of Grenada on the ſubject, and gave his opinion, decidedly, that the Hankey did not communicate this fever to the colony: from our people remaining ſome days on board, at ſea, and eſcaping with impunity, is a ſtrong ſupport to the evidence of Mr. Smithers. Dr. Chiſholm has laboured his arguments to prove, that it was a new diſeaſe; though, perhaps, only the common endemic of the country, more aggravated by a greater number of raw Europeans being the ſubjects of its influence, than he had been accuſtomed to obſerve before. This was the natural conſequence of the war; for ſhips are detained to wait for convoys, which would increaſe the number of ſeamen on the ſpot; at the ſame time we find raw recruits had juſt arrived from England. The pay of ſeamen is generally high on theſe occaſions, and they would be better enabled

---

nada. The diſeaſe ſpun out to a great length, but all recovered except Thomas Dillon.

The above deaths, with one man killed on ſhore at St. Jago, and another drowned on our paſſage to England, were all that happened during our voyage.

(Signed)

J. SMITHERS, Surgeon."

enabled to indulge their debaucheries, which would finally expofe them to the difeafes of the climate. Thefe circumftances taken together, fufficiently account for the variations of this Peftilence from the common Yellow Fever; and it comes near to what has been told me by fome medical friends, who vifited moft of the iflands during the mortality among the troops. As Dr. Chifholm has, therefore, been mifinformed in fome very effential parts of his inquiry, I cannot help thinking, that the account given by Commodore Dodd, and his furgeon, tends very much to fhake the opinion of the difeafe being imported.

Dr. Chifholm alfo fays, "that this fever was not confined to Grenada, but fpread from thence to the other iflands, and to the continent of America." I think this affertion is given on too flight grounds; we have the authority of Dr. Rufh, that the Yellow Fever of Philadelphia was generated on the fpot. Three young gentlemen died on board the Vengeance, a few days after leaving the iflands, of a fever, with regular remiffions, where a yellownefs appeared about the fifth or fixth day; which I could trace to a fwampy ground, where we got our water, a little to leeward of the town, at Monferrat. It is of great confequence to the peace and fecurity of fociety, that phyficians fhould be particular in inveftigating the fources of contagious difeafes; and every

every candid mind ought to guard againſt any biaſs from opinions of theory. We have ſeen ſome very ill-founded alarms ſpread, from the idea that this fever might be imported into England by trading ſhips: a ſimilar dread was ſpread while the diſeaſe raged at Philadelphia. I do not think that the infection is in any danger of becoming active on this ſide the Atlantic; it ſeems directly oppoſite to the nature of Typhus, and they are ſubdued by a directly oppoſite ſtate of the atmoſphere *.

From the account given by theſe authors, we have a right to conclude, that the diſeaſes, which they deſcribe, were the ſame; or what variation appeared in the ſymptoms, might be juſtly conſidered as the effect of ſituation, or ſome peculiarity of conſtitution in the perſon affected. In the chief part of the deſcription, theſe phyſicians differ little from Dr. Moſely, to whom we are indebted for the beſt hiſtory of this Fever, although he does not ſuppoſe it to be infectious. We have, therefore, the concurring teſtimony of the three lateſt writers on the ſubject, that the Yellow Fever is, in its firſt ſtage, a diſeaſe of a high inflammatory diſpoſition; and, in its latter ſtage, as the conſequence of the preceding, at-

* The dread of importing this fever, is kept alive by making ſhips undergo quarantine. Nay, an *army phyſician* reports the ſtate of men of war, before they are liberated by the health officers!

tended

tended with ſymptoms of exhauſted energy, terminating in gangrene and putrefaction. They alſo agree, that a peculiar ſtate of body favours its attack; viz. the young, perſons of tenſe fibres and rich blood, and the new-comers from northern countries. This being the caſe, the indications of cure have been ſimilar; although anſwered by ſome means that are rather new to the treatment of febrile diſeaſes.

The theory of this fever, if I may be allowed the expreſſion, affords a fine illuſtration of the new doctrine of Brown and Darwin, in what relates to the diſpoſition of new-comers from cold countries, making them the chief victims *. We are there taught, that animal exiſtence is endowed with a quality, called *Excitability* by Brown; *the Spirit of Animation*, or *Senſorial Power*, by the author of Zoonomia; on which the phænomena of life depend. Every thing which ſupports life, exerts its influence on this principle: it is capable of different degrees of accumulation and exhauſtion: it is accumulated by the ſubſtraction of ſtimuli, and is exhauſted by exceſſive ſtimuli, or the long application of others acting more

* See the Tranſlation of the ELEMENTA MEDICINÆ of Dr. Brown, publiſhed by Johnſon, London, with the elegant BIOGRAPHY of Dr. Beddoes.——ZOONOMIA, or the LAWS of ORGANIC LIFE; by E. Darwin, M. D. Johnſon, London. 2 vols. An ineſtimable work; and when phyſicians ſhall take the trouble to peruſe it, will probably ſupercede all other ſyſtems.

mode-

moderately: a due equilibrum between the exciting powers, ſuch as heat, food, air, mental exertion, &c. and the ſenſorial power conſtitutes *health*; and every variation from either, is *diſeaſe*. When the ſenſorial power is accumulated, it is more ſuſceptible of ſtimulants; this is ſtrongly exemplified in froſt-bit toes or fingers, on being ſuddenly expoſed to the fire, or plunged into warm water: the pain becomes intolerable from inflammation, and mortification, with mutilation often follows. This effect of the inflammation, is the indirect debility of Brown, and the exhauſted ſenſorial power of Darwin. On a larger ſcale, for the ſake of compariſon, we may ſuppoſe the inhabitant of a cold country, like a froſt-bit limb, and the climate of the Weſt Indies, like the warm water. The cold of our winter, from deficient ſtimulus, allows the ſenſorial power to accumulate; and increaſes the ſuſceptibility of the body, for the action of all exciting agents: in other words, it prediſpoſes us to inflammatory diſeaſes. As we change our ſeaſons gradually, we feel little inconvenience, becauſe the exciting power of heat in the ſpring, is not much beyond the degree of excitability which the winter had accumulated, and thus the one is gently exhauſted by the other. So a froſt-bit limb is recovered by plunging it into water of a low temperature, more proportioned to its degree of excitability. On theſe principles, inflammatory affections are found to

prevail

prevail moſt in the ſpring months, when the heat ſucceeds quickly to froſt. But if we go in the ſpace of a few weeks, from the cold of a ſevere winter, when the Therm. was at 20. to the Iſland of St. Domingo, where the heat is never below 80°. the tranſition is too ſudden, and the difference of temperature is too great for the body to accommodate itſelf to it, at once. It is like putting the frozen limb into hot water: there being a redundancy of both excitement and excitability, which paſſes rapidly through a ſtate of the moſt violent inflammation, that terminates in debility, gangrene, and ſpacelus. To wear out this accumulated excitability, by ſlow and gentle gradations, is the grand explanation of the word *ſeaſoning*: it is the ſecret, which conſtitutes the only difference between the inhabitants of England and Jamaica. The Yellow Fever of the Weſt Indies, therefore, as it appears in the body of a raw European, is a diſeaſe of the utmoſt excitement, in a conſtitution of accumulated excitability; where a tenſe fibre, and denſe blood, permit it to be carried to the higheſt pitch of inflammatory tendency, which, from the nature of the animal œconomy, ſpeedily exhauſts the powers of life, even in the ſpace of a day or two, inducing putrefaction and death.

Theſe principles being eſtabliſhed, concerning the nature of this fever, we have ſeen them applied

plied with ſucceſs in the cure, by Doctors Moſeley, Ruſh, and Chiſholm; and we ſhall now endeavour to reduce them to ſome practical advantage in the prevention.

We know, from Dr. Ruſh, that a ſtate of the atmoſphere, firſt checked his awful epidemic; and we know, from Weſt India phyſicians and ſurgeons, that a quick paſſage to the cold latitudes, often brings about wonderful changes in the Yellow Fever. The cold in this caſe reduces the exceſſive excitement, and prevents it from gaining that height, which tends to exhauſt the excitability or ſenſorial power in ſo ſhort a ſpace. When, therefore, the fever ſpreads in a ſhip, it has always been reckoned a ſalutary meaſure to put to ſea; we are only ſurprized that it has not been done more frequently, during the late mortality among ſeamen, at the iſlands. A certain height of temperature, ſeems alſo neceſſary to give activity to this contagion; if the fever is to be extended by this manner.

It was a wiſe meaſure in our Government, to ſend troops from Gibraltar, or our iſlands in the Mediterranean, to garriſon the Weſt India Iſlands, rather than from England at once: by which, the tranſition of climate was more gradual, and the exceſſive heat ſuſtained with impunity. To ſpeak more technically; the accumulated excitability was exhauſted by the exciting power of

heat, by gentler gradations, till it became proportioned to the excitement; which would fix the equilibrium between the two, and conſtitute Weſt India health: the muſcular fibre would become more ſoft and lax, and the blood leſs florid and denſe; and thus the body would be accommodated to a tropical temperature, or *ſeaſoned.* But, as military operations have been carried on in that country, in a more extended ſcale than formerly, which puts it out of our power to ſeaſon a whole army at Gibraltar, the the next expedient ought to be, to ſend them from this country before the cold weather ſets in, that they may arrive at the iſlands in the coldeſt months. I therefore, think, that all reinforcements ought to leave Europe, from the 20th of September to the 1ſt of October, but not later; whether ſhips or regiments.

There is another circumſtance deſerving conſideration in this buſineſs. Our armaments have lately ſuffered much by detention in the Channel: now, it would much facilitate all foreign expeditions, if the whole of the army were to embark at Cork, or other ports in the Weſt of Ireland, by which means they would *clear* the land in a day or two. I would, therefore, recommend, for conſideration, the conſtruction of barracks for ten thouſand men near the Cove of Cork, to be in conſtant readineſs for embarkation when neceſ-

ſary

ſary. The fate of the fleet under Rear-Admiral William Parker, in December 1794, and of that under Sir Hugh C. Chriſtian, in November 1795, are recent proofs of the propriety of this propoſal. With reſpect to the tranſports themſelves, there is much room left for improvement: it would ſurely be a better method for conducting this ſervice, that Government ſhould build veſſels expreſsly for the purpoſe, and not permit human beings to be ſqueezed into ſmall veſſels; which in blowing weather are drenched with water, and ſome of which have occaſionally been found ſo bad, as to be in danger of ſinking at their anchors. To prevent unpleaſant altercations between officers of the navy and army, they might be navigated as in the eſtabliſhment for navy tranſports. To each, there ought to be a ſurgeon or mate, with neceſſaries, inſtruments, and medicines. Many recent misfortunes, ſufficiently evince the neceſſity of this addition. But to our ſubject:

The prevention of this fever, evidently depends upon reducing the excitement. Now as we cannot reduce the heat of a Weſt India climate, we ought to attend to the other ſtimulant powers, which act along with the heat of the atmoſphere, and decreaſe thoſe that we can command; meat and drink, air, &c. are all of this deſcription: we can reduce the body very much by the evacuations of bleeding and purging. There was an old

 cuſtom

cuſtom of bleeding and purging ſailors and ſoldiers, when a ſhip got into the warm latitudes. I cannot help thinking, that it was a rational practice, however ill underſtood, and I long to hear of its being revived. I have ſeen a very quick tranſition of temperature produce grievous headachs; for one of theſe I bled myſelf at the ancle, and had immediate relief. They are certainly genuine precautions againſt tropical fevers; now confirmed by medical authority, and ſtill more by the premature death of thouſands of our countrymen.

Heat, at 84° of Farenheit, is an exceſſive ſtimulus to our bodies; but its danger is much encreaſed, when at the ſame time a great quantity of animal food, with vinous or ſpiritous liquors, forms the diet. Theſe articles, in conjunction, carry the excitement to the higheſt point imaginable: and hence, luxurious living has lately made many Engliſhman food for this mortal diſorder: I have frequently mentioned the names of my acquaintance to their friends, as being certain victims, from theſe cauſes.

The ſagacious Dr. Ruſh, in addreſſing his fellow citizens, ſays, "the beſt preventive of "the diſorder, are, a temperate diet, conſiſting "chiefly of vegetables, great moderation in the "exerciſes of body and mind, warm cloathing, "cleanlineſs, and a gently open ſtate of the "bowels." I am afraid few of theſe rules have

 been

been ſtrictly followed, by either officer or private, in our army. As my reſidence has been chiefly at Portſmouth for the laſt eight months, I have had many opportunities of ſeeing and knowing the habits of life of a great part of the young men who embarked lately on Weſt India expeditions. It was melancholy to behold ſome of their meſſes, where they ſeldom parted company, after dinner, till the bill would amount to a guinea, and often more, a-head. What a heedleſs profuſion of health! what an example to men under their command! Theſe modes of living, I am ſorry to learn, were practiſed by many of them throughout the paſſage; and continued to be a cuſtom in the iſlands. Would not Government, in ſuch caſes, have acted a juſtifiable part, to have preſcribed a diet of temperance, and enforced the compliance, under a penalty of diſmiſſion? Many of theſe gentlemen had juſt returned from a campaign in the Low Countries, where the moderate indulgence of wine was a ſafe preventive againſt the cold, and the marſh effluvia of the ſoil; but to carry ſuch opinions and practice into a ſultry climate, was certain deſtruction. When giving my opinion to my friends, on the beſt means of ſecuring health in the Weſt Indies, I often found it difficult to convince them of the propriety of low living. The common argument was, how are we to ſupport the heat, unleſs well

ſupported by nouriſhment? This was exactly inverting the queſtion: the heat is to be diminiſhed by food leſs ſtimulating. It ſeems never to have entered their heads, that the heat of the climate did, in a warm region, what a nouriſhing and ſtimulant diet affected in a cold one, to ſupport the excitement. Intoxication, it is well known, is doubly hurtful in a warm country; becauſe, with the ſuperabundant ſtimulus of the vinous ſpirit, is joined the exceſſive power of heat: the debility which it leaves behind, is more difficult to be recovered, becauſe the preceding excitement had been raiſed to a very high degree. A dinner in the Weſt Indies, where two-thirds, or three-fourths of it, has been made on vegetables, with water, ſmall beer, or a little wine diluted, gives the body a degree of ſtrength and activity, that are not to be obtained from a repaſt of animal food, ſtrong malt liquor, or wine. The latter bring on a drowſineſs and langour, that are apt to terminate in ſleep, and which generally happens; they are, therefore, improper food, while the heat of the atmoſphere is ſo great; they exhauſt life by an unnatural ſtimulus, and induce what is called *indirect debility*.

It is very generally admitted, that the French bear the climate of the Weſt Indies, better than Engliſhmen: now, no reaſon can be given for this, but their temperance in living, or being na-

tives

tives of a warmer ſoil, in the ſouthern provinces of France. With ſuch an example before us, we ought to have done otherwiſe: *fas eſt, et ab hoſte doceri:* the maxim was never more applicable than in the preſent inſtance. I cannot help thinking, for theſe reaſons, that much might be done by diet and regimen, to preſerve our ſailors and ſoldiers in theſe iſlands.

As a large proportion of animal food enters into the diet of both ſailor and ſoldier, it would be neceſſary to diminiſh that, in the firſt place: whether ſalt or freſh, it is the moſt ſtimulant diet. As ſoon as any outward bound ſhip or tranſport, in its paſſage, gets to the ſouthward of the iſland of Madeira, let the beef and pork be reduced one half. In lieu of the other half, let the people be ſerved with cocoa, coffee, or even tea, ſufficient for a pint of water, with ſugar to ſweeten it, for an evening meal. If this does not equal the value of the beef or pork, let them be paid in caſh, as is uſual on ſhort allowance. When they arrive at the iſlands, let the daily quantum of meat be reduced to one third of a pound. If the ſailors have not oatmeal gruel, with ſugar or molaſſes for breakfaſt, coffee or cocoa ought to be invariably ſubſtituted. A delicious meſs for breakfaſt may be made of the peaſe prepared in the manner of coffee, and ſweetened with molaſſes; the people like it beyond any thing; and I con-

ſider it a highly worthy practice, and a moſt judicious improvement in diet. At this time, I would alſo increaſe the quantity of bread, which would be always conſumed, while they have cocoa, coffee or tea, to encourage its uſe. When the tropical vegetables and fruits can be procured, I would recommend them to be ſerved, in harbour, two or three times a week: veſſels ought even to be conſtantly employed to carry them to the fleet, at ſea; and if they cannot be ſupplied in ſufficient quantity at one iſland, let them be brought from another. Plantains and yams would be a fair ſubſtitute for bread, at leaſt once or twice a week. Seamen and ſoldiers, it may be ſaid, would not eaſily ſubmit to theſe changes: I well know they would not be popular, till the men were convinced that it was ſolely done for their good; and it would be the duty of every officer to impreſs them with this truth. For my own part, I ſee no unſurmountable difficulties in the buſineſs. Many of the Weſt India vegetables, when mixed as a ſallad, are delicious; and a few ounces of ſalt meat are ſufficient to reliſh ſo many pounds. But it would even be a cheap method, to have theſe articles in conſtant cultivation, for the uſe of navy and army, at every iſland. Ship loads of potatoes, and our cheaper pickles, might be occaſionally ſent from England. The flour pudding with currants, pea-ſoup, rice and

and ſugar, might alſo be judiciouſly blended with this diet.

The negroes live entirely on vegetable food, yet they are capable of working for ſixteen hours, out of the twenty-four; which is a proof, that deficiency of animal food does not induce weakneſs of body. Vegetable food affords a larger quantity of water, which dilutes the blood, gives a copious ſupply of perſpiration, during the evaporation of which, from the ſurface of the body, the extreme heat is leſſened.

The uſe of ſpirits, in any form, ſhould be totally laid aſide: they are ſlow poiſon in cold countries, but here they do the work of deſtruction quickly. Four ounces of wine, forenoon and afternoon, diluted with water, is an ample allowance for any man, who wiſhes to preſerve health and conſtitution in theſe regions; nay, I am of opinion, that the man who drinks nothing beyond pure water, has the beſt chance of eſcaping fevers in the Weſt Indies; unleſs ſome particular frailty of body urges the propriety of drinking wine as a medicine. Among my own acquaintance, who have lately returned in perfect health, I can reckon many, who lived almoſt on vegetables, and drank water. Some of the number conſider themſelves as living monuments of my advice, and attribute their eſcape to the inſtructions they received from me at their departure. It is the effect of high living, whether

whether in eating or drinking, to wear out the conſtitution; it gives a ſhort vigour, which is followed by langour and inaptitude to exerciſe: if in the laſt ſtate the body is expoſed to unwholeſome ſwampy ſituations, or the dews of the night, a fever follows. In conſtitutions accuſtomed to live in this manner, it riots with unconquerable violence; till in the ſhort ſpace of a day or two, this goodly frame is converted into a maſs of corruption. Thus we ſee them the firſt to ſink under fatigue*, while the ſpare and ſlender ſubject undergoes it with impunity, and eſcapes fevers in all their ſhapes.

By way of indulgence, a ſhort allowance of malt liquor might be ſerved once a week; but ſpirits in any form ſhould never be thought of. Uncommon pains ought therefore to be taken to diſſuade men from the uſe of the rum: intoxication muſt therefore be puniſhed with the moſt exemplary ſeverity.

The

* "He had a fever when he was in Spain,
"And, when the fit was on him, I did mark
"How he did ſhake: 'tis true, this god did ſhake:
"His coward lips did from their colour fly;
"And that ſame eye, whoſe bend doth awe the world,
"Did loſe his luſtre. I did hear him groan:
"Ay, and that tongue of his, that bade the Romans
"Mark him, and write his ſpeeches in their books,
"Alas! it cry'd *Give me ſome drink, Titinius*;
"As a ſick girl."

SHAKESPEAR.

The exemption of the fair ſex from this dreadful malady, can only be attributed to the habitual and temperate tranquillity of their lives. Abſtemiouſneſs and moderation in eating and drinking, along with a ſedentary life, give that delicacy and ſoftneſs to the muſcular fibres, and diſpoſe them leſs to diſeaſes of high excitement. Having leſs intercourſe with the hurry and buſtle of buſineſs, that amiable equanimity of temper is ſeldom ruffled by thoſe paſſions which agitate mankind, and ſupply an exceſs of ſtimulus. Bountiful Nature has thus kindly attoned for thoſe ills which are peculiar to delicate frames; while their virtuous habits give them that fortitude and patience, ſo often admired under affliction, to which we are ſtrangers. It is, therefore, women of more robuſt conſtitutions only, who become ſubject to the Yellow Fever.

With reſpect to dreſs, I think ſome changes might be made to advantage. I would have the whole cloathing of a ſoft, ſlight cloth, between a flannel and what is now in uſe. Socks and pantaloons, with canvaſs ſhoes, for the legs and feet: an eaſy looſe ſhirt or waiſtcoat, of the ſame woollen cloth, with ſleeves, and no linen next the ſkin. The ſoldier, for ſleeping in, ſhould be provided with a large blanket of the ſame cloth, which he might occaſionally carry with him, if on a march at night. For the head, I would prefer a light hat,

hat, painted water-proof, and formed to defend the eyes from the glare of the sun. Soap should be allowed to wash this dress twice a week, at Government expence. The hair should be worn short.

A judicious and humane commander, whether on board or on shore, will always be careful how he exposes his men to a meridian sun, in a warm country. The duty will therefore be so conducted, as never to endanger them from the heat of the day: it would be well if black people were to be employed, when it is necessary to work in the sun. A few negroes attached to every ship and regiment, would save the lives of many white men. It is surprizing to think, that this has never been accomplished, when we look to the expence and difficulty of procuring sailors and soldiers. Amidst the fluctuation of commanders, a progressive system of improvements will scarcely take place: different men have different modes of action; and if ample documents of bad measures point out the necessity of alteration, the best concerted plans may be laid aside, by a new set of men coming into office. But such is the want of foresight in human nature, that the evidence of misfortune is seldom canvassed till too late.

An open state of the bowels is an excellent assistant to health in the West Indies; it is indeed indispensable, and secures the stomach against a regurgitation

regurgitation of bile, ſo prevalent there *. To the precaution mentioned above, moderate exercife, regular hours of reſt and ſleep, with due attention to cleanlineſs, in perſon and cloathing may be added.

It does not appear to me that much trouble would be required in introducing theſe alterations, in either navy or army: additional expence there could be none. I am aware that many objections may be offered; but they can only come from people who are torpid, and never thought of improvement. Let us abſtract ourſelves a moment from ſelf, and think of our fellow-creatures. Look to the plains of Leogane and Baſſeterre, fattening with the bodies of Engliſhmen! Something muſt be done to reconcile our countrymen to ſervice in theſe iſlands; otherwiſe, we muſt abandon the lucrative commerce of theſe fertile regions.

There having been ſo much novelty in the exhibition of mercury, by Doctors Ruſh and Chiſholm, in this fever, that we wait with anxiety to learn

* Capt. Ball informed me, that the eſſence of ſpruce a little diluted, did wonders at St. Domingo, both in prevention and cure. It acted as *a purgative*, and conſequently was judiciouſly adminiſtered.—I have juſt ſeen an advertiſement in the news-papers, from the Commiſſioners of Sick and Wounded, to contract for a large ſupply of it. Capt. Ball added, that it ſat on the ſtomach when every thing elſe was rejected.

learn the general ſucceſs of it among other phyſicians. What information has come to myſelf, on the ſubject, has been very unſatisfactory indeed: ſome perſons condemn it, while others pronounce it eminently ſucceſsful. There is one fact, too certain, that whole armies have died rapidly away. We have therefore a right to conclude, that this practice has either been of no effect; or elſe it has not been duly adminiſtered. For the honour of human nature, and the credit of the medical profeſſion, we cannot a moment harbour the idea that it has not been duly adminiſtered, or that juſtice has not been done to the mercurial proceſs, while the lives of ſo many valuable men were depending on it, and the fate of a nation with millions of property ſinking with them. I would recommend a ſtrict official return to be called, from every phyſician and ſurgeon now in the Weſt Indies; and a detail of the method of treatment in the Fever, down to the minuteſt circumſtance of medicine, diet, and regimen. This return would no doubt exhibit a gloomy catalogue of mortality; but it might go a great way to prevent a repetition of the ſcene. If accurate vouchers are required for every two-penny nail, or yard of cordage, how much more are they required for the ſafety and cure of a brave ſailor or ſoldier?

Might not ſome method for generating artificial cold, be of ſervice in this fever? I ſhould like

like to know the effects of wrapping the body, for a length of time, in wet linen; some how after the fashion of cooling wine, by suspending it in canvass bags, frequently sprinkled with water: such a trial is perfectly consistent with the most approved opinions on the nature of the Yellow Fever; but it must be done during the inflammatory stage.

September 12, 1796.

SINCE making these remarks on the diet of our ships, I find they have not that originality which I believed belonged to them. I have just met with a work, entitled "*Colloquia Maritima*, or Sea Dialogues; by N. Boteler, Esq. formerly a commander in one of his Majesty's royal ships: London, printed by W. Fisher and Richard Mount, at the Postern on Tower-hill, 1688." In which a proposal very much resembling my own, is narrated by the captain, in a dialogue with his admiral *.

"Admiral.—Let us now return to our victuals, "wherein there is one point more that I desire "to be satisfied in; and that, whether it were not "more beneficial and preservative for the health "of our men, that the main of our victualling "were

* This curious work was put into my hands by my worthy friend Vice-Admiral Gayton, who preserves it as an antique.

"were, in the kinds thereof, altered and nearly "fitted to the manner of foreign parts, rather "than as at the present with us; to consist so much "of salt and powdered meats, in beef, pork, and "salt-fish?

"Captain.—Without doubt (my Lord) our "much, and indeed excessive feeding upon these "salt meats at sea, cannot but procure much un-"healthiness and infection, and is questionless "one main cause, that our English are so subject "to Calentures *, Scarbotes †, and the like con-"tagious diseases, above all other nations; so "that it were to be wished, that we did more "conform ourselves, if not to the Spanish and "Italian nations, who live most upon rice-meal, "oat-meal, biscake, figs, olives, oil, and the like; "yet at the least to our neighbours the Dutch, "who content themselves with a far less pro-"portion of flesh and fish than we do; and "instead thereof, do make it up with pease, "beans, wheat, flower, butter, cheese, and those "white meats (as they are called).

"Admiral.—It were well indeed if we could "bring ourselves to this provident and whole-"some

* A phrensy or inflammation of the brain: it used to be frequent in ships in the Mediterranean and West Indies. Inflammation of the brain, and the ferocious delirium, are common attendants of the Yellow Fever.

† The Scurvy. Latin, Scorbutus.

" ſome kinds of ſea-fare; but the difficulty con-
" ſiſteth, in that the common ſeamen with us, are
" ſo beſotted on their beef or pork, as they had
" rather adventure on all the Calentures and Scar-
" botes in the world, than to be weaned from
" their cuſtomary diet, or ſo much as to loſe the
" leaſt bit of it; ſo that it may be doubted, that
" it would ſet them upon a loathing, and running
" away, as much as any other thing whatſoever.
" Captain.—I confeſs, that it is no eaſie matter,
" by any new reaſon, to take off theſe from an
" old cuſtom; and yet would they but patiently
" conſider, of the well and luſty ſubſiſtance of
" the Italian, Spaniſh, and Dutch nations, who
" hereby live far more healthfully at ſea than
" they do; or but of our colony people in St.
" Chriſtopher's, the Barbados, Virginia and the
" Bermudas, who for the moſt part live, and
" thrive well, with their *huſked-homeny*, and *lob-*
" *lolly* (as they tearm it) which they may make
" of the Weſt Indian corn, called maize, it would
" perhaps work them to ſome willing conformity
" in this particular; or if not, it is fit that they
" ſhould be uſed like *little children*, or *peeviſh*
" *patients*, and made to keep a good diet
" whether they will or no*.—But howſoever

* I ſuppoſe this frank, though intelligent officer meant, that if they would not comply with what was for their benefit, and the duty they owed to their King, that they ſhould be either flattered or whipped into it.

" ſure I am, that this maiz is a moſt excellent
" ſea-food, and moſt proper for long ſea-voyages;
" for (as it may be eaſily ordered) it will keep
" extraordinarily, and withal is very nouriſhing
" and healthful.

" Admiral.—But I ſee not of what uſe it can be
" with us, ſince it groweth not in theſe parts,
" nor is here any where to be had.

" Captain.—I know well (my Lord) that theſe
" northern climates produce not theſe kinds of
" grain; for neither the heats of our ſummers,
" nor the ſtrength of our ſoil, will bear or mature
" it; I do not therefore propound it as a pro-
" viſion for our ſhips outward-bound, but only
" to intimate, that whenſoever we ſhall have oc-
" caſion, and leave to look once again towards
" the Weſt Indies, that then this kind of food
" may be found moſt uſeful for a ſupply of
" victual to all ſuch of our ſhips as are bound
" that way, and that either whilſt they are there,
" or when they are to return. To which end it
" will then be neceſſary that all our ſouthern
" colonies be inſtructed to employ themſelves,
" (rather than as at the preſent upon *ſmoaky*
" *tobacco)* in planting, and ſtoring up ſo neceſſary
" a commodity, that ſo an abundance thereof
" may be ready for all ſuch fleets and ſhips of
" ours, as ſhall be employed that way; the
" which is to be taken off from the colonies at

 " reaſonable

" reaſonable and honeſt prices, with ſuch needful
" merchantdize, as is requirable for their uſe;
" that ſo it may become their ſtaple commodity,
" and a ſurer means of ſubſiſtence, than tobacco
" is likely to be.—And as for the iſlands of Ber-
" mudaes, or Summer Iſlands, give me leave to
" aſſure your Lordſhip (as one that well knoweth
" them, and ſhall be ready to demonſtrate it
" evidently, whenſoever I ſhall be called unto it)
" that (in regard of their natural ſtrength, the
" ſafety of their harbours, their moſt opportune
" ſituation, their ſalubrity, and their wonderful
" production) they are the moſt advantageous
" piece, not only within his Majeſty's dominions,
" but of all thoſe parts, for to make uſe of, in
" all thoſe Weſtern ſervices, eſpecially ſea-em-
" ployments upon theſe coaſts; and in that re-
" gard, do well deſerve both to be cheriſhed and
" well looked into."

It is a little remarkable that this laſt advice of the honeſt Captain ſhould never have been attended to ſooner. A ſurvey has at laſt been made, and a harbour diſcovered fit for a large fleet: it is of the more conſequence at this time, as theſe iſlands are ſituated in the very ſpot that could be wiſhed, to annoy the homeward-bound trade of the French and Spaniards. It will alſo be an *aſylum* for ſickly ſhips from the Weſt Indies: particular orders ought therefore to be given, when ſickneſs

is likely to become general among a ſhip's company, that they depart quickly for Bermudas. On this account, I would recommend an hoſpital to be fitted there, with every convenience, on a large ſcale, for the uſe of both navy and army: here the convaleſcents from the Weſt India diſeaſes might be recruited at a ſmall expence, and ſeaſoned to the climate.

From ſome recent accounts, I am ſorry to learn, that among medical gentlemen in the Weſt Indies, at this time, there is ſtill a conſiderable diverſity of opinion; both on the nature of the Fever, and its treatment. Some ſtill perſiſt in the ſtimulant plan; after all the evidence of thoſe great phyſicians which we have quoted, has been brought againſt it. This is adding horror to death. We have appealed accordingly to firſt principles, and the little experience which we have ſeen of the diſeaſe, juſtifies the whole. Whoever attempts to controvert the practice of Dr. Ruſh, muſt bring unequivocal arguments indeed, to ſupport his method of cure; for he has to oppoſe a phyſician, whoſe unwearied zeal and attention carried him beyond the common duties of the profeſſion, and have rendered his precepts and authority very high. It appears to me, that the large doſes of mercury act, by their purgative quality, cauſing a large and ſudden depletion of the inteſtines, and the excretories that empty themſelves there. This medicine

medicine has therefore its peculiar period of exhibition, which ought to be early; and in full habits, large bleedings ought to accompany it. Authors, I think, treat the yellownefs of the fkin too flightly in the pathology of this difeafe. I cannot fuppofe fuch a large fecretion of bile to take place, without fome peculiar affection of the fecreting organ. The large fuffufion of bile happens particularly during the ftage of debility; at leaft the fymptoms of increafed excitement are evidently on the decline. Now, is the liver itfelf affected? or the vifera connected with the fyftem of vena portarum veffels, which furnifh blood for the biliary fecretion? but perhaps the blood itfelf, during the violent inflammatory ftage, is altered in its quality, by which means it furnifhes a larger proportion than in its healthful ftate. This kind of icterus differs from all others, for there is no obftruction in the ducts: it paffes into the inteftines, and is taken up by the lacteals; not the whole of it, for the fæces are more highly tinged than ufual. In jaundice, from other caufes, no bile is found in the alimentary canal.

Dec. 3d. Moft of the fhips which have returned this feafon from the Weft Indies, have been fufferers from the Yellow Fever: yet the difeafe, in all of them, uniformly difappeared as they increafed their latitude: at 32° north, no frefh

 attacks

attacks were known. We muſt ſuppoſe, that communication with the ſhore produces this fever; for a cruize ſeldom fails to put an end to it. Vice-Admiral C. Thompſon, who lately commanded there, was ſo certified of this, from long experience and attention to the ſubject, that he ſometimes inſiſted upon ſhips putting to ſea, when their condition otherwiſe was unfavourable. One caſe in particular, during his command, is too pointed to be over-looked: the Yellow Fever broke out in a ſhip, and her Captain came to inform the Admiral of his diſtreſs: peremptor orders were inſtantly given to put to ſea, without delay. The Captain even heſitated: but the Admiral added, "that if he did not ſee the veſſel under weigh in an hour, the boats of the Fleet ſhould *tow* her to ſea." The ſhip went to ſea; and returned, after a fortnight's cruize, in perfect health; and free from the Yellow Fever, which ſhe carried out.—The Dædelus frigate, that arrived at Portſmouth in October, left the iſlands with this Fever on board; ſo large a number of men and officers were affected, that Captain Counteſs thought it expedient to puſh for Halifax, to land his ſick: but, before he reached that port, the diſeaſe had taken a favourable turn, and was ſoon extirpated.—I apprehend, an imitation of this practice will always be attended with ſalutary conſequences.

Dr.

Dr. Pattiſon, who went to St. Domingo ſurgeon of the Leviathan, has obliged me with the outlines of his practice, when this Fever appeared on board. On the firſt ſymptoms of attack, he bled the patient two or three times in the ſpace of a few hours, if one large bleeding did not give effectual relief. He next gave a large doſe of natron vitriol. much diluted, by way of emptying the inteſtines: if this medicine was vomited up, a glyſter of the ſame ſalts anſwered the purpoſe; and it was repeated every five or ſix hours. It was obſerved, that this purge often ſat eaſy on the ſtomach, when other articles, leſs nauſeous in other conditions, were immediately rejected. The next proceſs was, to wrap the patient in a flannel ſhirt, *dipped in vinegar*; which always relieved the comatoſe ſtate, and the appearance and feel of the ſkin were quickly altered. This treatment was ſo ſucceſsful, that the diſeaſe became manageable; and a few days commonly reſtored the patient to duty*.

Mr. Robert Harris, ſurgeon of the Thunderer, who has juſt returned from Martinique, found a method of cure, much like that of Dr. Pattiſon,

* About the time that the Leviathan croſſed the line, Dr. Pattiſon, at Captain Duckworth's requeſt, recommended every man to take a purge of ſalt water: this was repeated three times before the ſhip made the Iſland of St. Domingo; and the good effects of the practice were generally remarked.

equally ſucceſsful. He had recourſe to glyſters of common ſalt water, in the firſt inſtance, which, with plentiful bleeding, were always effectual in relieving the firſt ſtage. Mr. Harris thought that he obtained uncommon benefit, by waſhing the body all over with the juice of lemons.

The ſucceſs which attended the practice of theſe gentlemen, is a demonſtration of the juſtneſs of the principles laid down by Dr. Moſeley and Dr. Ruſh; and it gives us cauſe to hope, that as they become better underſtood, and more generally practiſed, the mortality occaſioned by this Fever, may be, in a great meaſure, checked. The relief obtained by the flannel ſhirt, dipped in vinegar, and waſhing the ſkin with lemon juice, I am apt to believe, was owing to the cold on the ſurface produced by the evaporation of the fluid. I ſhould be glad to know the further reſult of this plan, as it muſt act powerfully in diminiſhing the excitement, ſomething like a cold atmoſphere.

The Thetis and Huſſar, off the Capes of Virginia, on the 16th of May 1795, engaged five French armed ſhips, two of which were taken. Theſe ſhips had left Guadeloupe lately, and had buried numbers in the Yellow Fever. From one of them, the Huſſar received the infection, and afterwards landed eighty-three, ill of the diſeaſe, at Halifax. Mr. Iſaac Wilſon, who has favoured me with this account, attended them for five weeks

weeks himſelf, in tents fitted for that purpoſe: of this number, ſtrange to be told! not one died.

Mr. Wilſon bled freely, in proportion to the urgency of the ſymptoms, and uniformly within the firſt hour from the acceſſion; by which timely evacuation, delirium was either completely prevented, or cured. Tartarized antimony was next exhibited; and care was taken, that no warm water ſhould aſſiſt the vomiting; which was the means of relieving the ſtomach from vaſt loads of bile, and at the ſame time generally procured evacuation downwards. The bowels were kept ſoluble by glyſters or kali tart. A bliſter was applied to the region of the ſtomach; the head was ſhaved, and cold applications were found uſeful. The cold bath, in caſes of delirium, was always of ſervice: the ſhower bath was the mode practiſed; after which, the patient was wiped dry and put to bed; ſleep followed, and delirium ſeldom recurred. Such was the practice of Mr. Wilſon, in eighty-three ſucceſsful caſes; a larger proportion than has uſually fallen to one medical attendant!

MEDICINA NAUTICA.

CATARRH.

IT is here intended to ſpeak only of the Epidemic Catarrh, or Influenza, as it was firſt named by the Italians.

This diſeaſe has twice, in our remembrance, been epidemic in the Channel Fleet; at one time it prevailed to ſuch a degree, in the ſpring of 1782, as to render the ſhips almoſt inactive. The diſeaſe was then general throughout Europe: it ſpread from the ſhores of the Baltic to Holland and the Low Countries, from thence to England, to France, Germany, Portugal, Spain, and Italy. The ſpring of this year was remarkably late, with a long prevalence of cold eaſterly winds: the hedges were not full blown in Cornwall before the beginning of June. A ſimilar ſtate of weather has commonly uſhered in this univerſal malady. When I was ſurgeon of the Buſtler ſloop of war, and attending a ſurvey of ſeamen at Plymouth Hoſpital, I was attacked with the Catarrh. It did

did not appear to me at that time, that I had been near any perſon under the diſeaſe: none of the gentlemen in the room complained, nor was it apparent among the patients. My own, was one of the moſt early caſes in the neighbourhood; but in a few days it extended over the whole country. The firſt diſagreeable ſymptoms, were an unuſual fulneſs about the forehead and eyes. The eye-balls ſeemed protruded, inflamed, painful, and could not bear the light. There was at the ſame time a large ſuffuſion of tears, which gave to the countenance the appearance of exquiſite diſtreſs. The lady where I lodged, apprehended from my looks, ſome uncommon misfortune, and was with difficulty convinced that I was labouring under a very different complaint. The fulneſs of the forehead was confined to that ſpace occupied by the frontal ſinuſes; and is no doubt to be aſcribed to an inflammatory affection of the membranes which lines theſe cavities: the pain and fulneſs were alſo felt in the upper part of the noſe, when a ſneezing and a diſcharge of mucus became exceſſive. More or leſs of chillineſs and ſhivering accompanied theſe affections. I had a continual thirſt, no appetite, though no nauſea, and a total inaptitude to motion.

There is ſomething very particular in the propagation of this diſeaſe, from its ſudden attack. When the ſquadron under Admiral Kempenfelt, conſiſting

consisting of eight sail of the line, lay in Torbay, part of the Channel Fleet, Lord Howe with the rest being in the North Sea, two hundred men were seized in one night, on board the Fortitude. The signal was made to unmoor or get under weigh in the morning; but the officers could not get the men out of their hammocks. It was in vain that they used threats, the people declared that they were unable to move. The surgeon and mates were sent for, who soon pronounced, that they were labouring under a violent disease. This was communicated to the Admiral; who doubted the report, and sent three captains with their surgeons, to examine the state of the Fortitude's ship's company. The captains found it exactly as related; the ship was ordered to Plymouth, where numbers of her crew were landed at the hospital. The other ships had not been two days at sea, till their situation was as bad as that of the Fortitude; some of them could scarcely muster seamen to take in sail: the whole returned to port. Mr. M'Nair, an able surgeon, gave me this account of the Catarrh, in the Fortitude.

In the mean time, the Fleet in the North Sea suffered from the Catarrh in an equal degree; and was obliged to return to port to recruit the people. Some deaths happened in consequence.

On

On the 17th of January 1795, the weather then very ſevere, and the thermometer at 17° of Farenheit, I was ordered to examine the ſtate of the Cumberland, juſt arrived from the Nore, where ſhe had been lately commiſſioned. I found one hundred and twenty men ill of Catarrh. The ſymptoms, however, were in general ſlight, with no oppreſſion on the breaſt, and none were confined to bed: a few of the worſt were ſent to the hoſpital. As the acquiſition of a 74 gun ſhip was of ſome importance at this time, the enemy's fleet being at ſea, I recommended what was deemed needful in ſuch a condition, and reported the ſhip fit for ſea. Captain Rowley was active and careful in making the ſick comfortable. He procured the whole, additional warm cloathing, particularly flannel jackets, which were the more valuable, as a great part of the crew had lately returned from the Weſt Indies in the Vengeance. Care was alſo taken not to expoſe them to unneceſſary cold and wet weather. Directions were immediately given to abſtain from waſhing, to ſubſtitute ſcraping and rubbing with dry ſand: additional fires were lighted on the lower deck. The ſick liſt decreaſed from this time, and the Cumberland did well.

A few days after my viſit to the Cumberland, I was ordered to report to the Admiral the ſtate of the Coloſſus, from the number of ſick

ſick, upwards of ſeventy, being returned in the weekly account. This diſeaſe was a Catarrh; and ſome were ſent on ſhore with ſymptoms of inflammation, conſiderably greater than any in the other ſhip. The Coloſſus appeared to me to have her ſickneſs much aggravated by waſhing decks; although I found that Captain Jenkins, then her firſt lieutenant, had oppoſed the practice, and repreſented it as hurtful. It was afterwards laid aſide. The Coloſſus did not ſuffer from any future increaſe of the ſick-liſt, during the cruize*.

The

* "The prevalence of catarrhal complaints appear to me to have ariſen from the intenſe cold. A patient died who was old, but had been always ſubject to complaints of the breaſt, and difficulty of breathing.

(Signed)

Coloſſus, Jan. 1795. J. BALLENTYNE, Surgeon."

"There was a catarrhal fever prevailing towards the end of the month. (Signed)

London, Jan. J. SMITH, Surgeon."

"Catarrh was the prevailing complaint, particularly during the firſt fortnight of this month; having had ſeldom fewer than ſeventy on the ſick liſt. But on its being ſuggeſted to me, that it was much aggravated by too frequent waſhing of decks; this moſt pernicious practice, in cold and damp weather, was intirely laid aſide. In its ſtead, the decks were kept clean, by ſcraping and ſcrubbing with ſand, &c. The good effects

The Fleet being obliged to put into Torbay, in the beginning of February, we there experienced some severe weather. The Catarrh was now general in every ship. Some bad cases appeared

---

effects of this were soon apparent; for, during the last ten days, the number of catarrhs never exceeded twenty.

(Signed)

Barfleur, Jan. P. SMITH, Surgeon."

"The prevailing complaints, slight fevers, and catarrhs, seemed occasioned by the severity of the season: and, no doubt, assisted by that extreme thoughtlessness so peculiar to seamen. (Signed)

Valiant, Jan. A. THOMPSON, Surgeon."

"The men have been generally afflicted with violent colds, coughs, attended with hoarseness, and some feverish heat. (Signed)

Marlborough, Jan. T. ROMNEY, Surgeon."

"The catarrhal complaints seem to have arisen from the sudden change of weather; and readily gave way to diaphoretics, opiates, and warm diluent drinks.

(Signed)

Royal Sovereign, Jan. R. FORREST, Surgeon."

"The prevailing diseases for this month, have been chiefly catarrhal complaints, attended generally with more or less fever; but which, however, have in no instance proved fatal, or even of long duration. The fever cases sent to the hospital, consist entirely of marines, whose exposure as centinels on the gang-

peared in the Brunſwick, Canada, and Prince of Wales: In the latter ſhip it aſſumed very much the

---

gang-ways, in night-watches, to the intenſe colds, which have lately prevailed, will I apprehend, ſufficiently account for their being attacked, when ſeamen who keep no watch in harbour have eſcaped.

(Signed)

Aquilon, Jan. THOMAS MOFFAT, Surgeon."

" About the beginning of January, our people began to complain of catarrhs ; with head-achs, ſome with ſore throats, others with ſymptoms of fever. Theſe ſymptoms in general gave way to the uſual evacuations, and left coughs and pains of the breaſt, which yielded to pectorals.—As far as I am able to judge, this diſeaſe did not proceed from any contagion, but rather from the intenſe cold and wet weather we experienced.

(Signed)

Hebe, January. JOHN LEGGAT, Surgeon."

" The principal complaints on board the Queen, for the laſt two months, were catarrhs, with coughs, ſore throats, and fevers. The fevers were ardent, but happily ſoon ſubdued by the uſual evacuations, bleeding, and laxatives. The crew at preſent is healthy, *not* a man in the ſhip being confined to bed, by any diſeaſe!

(Signed)

Queen, Feb. 28. ALEXANDER BROWNE, Surgeon."

So completely was the duty in this ſhip, adapted to health by her officers, that Mr. Browne, her ſurgeon, uſed to ſay, that they left him nothing to do It was like her method of fighting, *perfect*. *T. T.*

" The

the type of a pure Typhus, with weak frequent pulſe, dejection of countenance, great muſcular debility, and ſtupor. Among the ſoldiers who acted as marines, this was particularly remarked. They

"The catarrhal complaints, which have been very numerous, in general yielded ſoon; but ſome left very conſiderable weakneſs behind. One caſe, a ſudden and violent affection of the lungs, proved fatal.

(Signed)

Impregnable, Feb. W. WALLIS, Surgeon."

"The above fevers were, nine ſynocha, and one typhus. (Caſes of Fever, in the Monthly Report.) The latter caſe from the beginning had the moſt unpromiſing ſymptoms, and terminated fatally on the 24th day.—Catarrhal complaints are ſtill prevailing, but in a milder degree, which I attribute entirely to the aboliſhing the waſhing of decks, and the cruize to the ſouthward.

(Signed)

Barfleur, Feb. P. SMITH, Surgeon."

"With reſpect to the probable cauſe, of ſo many Catarrhs, with ſome fevers, I principally attribute it to the weather being in a very unſettled ſtate; for the greater part of them were taken ill the firſt ten days of the month, and the weather at that time was very changeable.—Were ſailors obliged to wear flannel ſhirts in the winter months, when they are neceſſarily expoſed ſo much to the inclemencies of a channel ſtation, I think it might be attended with good effects *.

(Signed)

Robuſt, Feb. J. TURKINGTON, Surgeon."

* Cloth trowſers and flannel waiſtcoats, have, by recommendations from the Fleet, become a part of Navy Slops. *T. T.*

They had been lately embarked, were very badly cloathed, and, on the whole, looked more like objects for the Infirmaries of the country, than to fight her battles. For these reasons, nine of the

---

"The principal disease has been catarrhal complaints, owing to the intense rigour of the weather; which have given way to gentle diaphoretics and pectorals.

(Signed)

Cæsar, Feb. J. NUTT, Surgeon."

"A kind of influenza made its appearance on board early in February, but soon disappeared. The medicines employed, were chiefly antimony and nitre; some required bleeding: otherwise the ship's company is healthy.

(Signed)

Niger, Feb. ROBERT KIRKWOOD, Surgeon."

"The catarrhal affections, were treated successfully by bleeding, antimonials, and pectorals. In the unsuccessful case, there was much diseased secretion from the lungs; blisters, and occasional opiates, were had recourse to, ineffectually. In the other cases, nothing occurred new, or particularly interesting.

(Signed)

Bellerophon, Feb. R. NEWBERRY, Surgeon."

"The Influenza was the most prevailing disease in this month; it first made its appearance on board the Hannibal, about the 5th or 6th; soon after the commencement of the thaw, during which time the wind blew from the eastward of south: and it continued to affect the officers and ship's company

the worſt were ordered to be ſent on board the Charon; when wine, æther, and a nouriſhing diet, ſoon brought them about.

In

---

pany until the 12th, when it began to abate, and the wind came to the weſtward of ſouth-weſt.

"It appeared to me, that this Epidemical Diſeaſe was cauſed from a particular ſtate of the air, after the thaw took place.

(Signed)

Hannibal, Feb. W. WALKER, Surgeon."

---

* It prevailed in the Cumberland and Coloſſus, during the ſevereſt froſt. *T. T.*

"A fever made its appearance, about the 1ſt of February, of the low nervous kind: the ſymptoms of which were, nauſea, thirſt, anxiety, fluſhing of the eyes, a pain at the *ſcrobiculis cordis*, with a quick pulſe and delirium in the earlieſt ſtages of the diſeaſe. Clearing the *primæ viæ* by emetics, in the firſt inſtance, with bliſters, bark and wine afterwards adminiſtered, were the only ſucceſsful remedies employed. From the diſeaſe aſſuming an inflammatory appearance, indicated by ſtricture on the breaſt and full pulſe, with a difficulty of breathing, I was induced, in two caſes, to make uſe of the lancet, in both of which it was evidently of diſſervice. Three died of this fever.

"A ſpecies of Influenza, reſembling that which made its appearance in 1782, was common throughout the ſhip, and I believe the Fleet in general.

(Signed)

Melampus, Feb. J. B. HOUSEAL, Surgeon."

Theſe two diſeaſes, probably, only differed in different ſubjects; and acknowledged a common cauſe, for Mr. Houſeal does not ſuſpect any contagion brought to the ſhip. *T. T.*

"Catarrhal

In other ſhips, the inflammatory ſymptoms ran high, and venæſection was ſometimes repeated with

---

"Catarrhal complaints have been moſt prevalent this month, and in general ſoon yielded to bleeding, antimonials, laxatives and opiates, and in ſome caſes, bliſters. The ſhip's company is now almoſt free of it, except one from irregularity.

(Signed)

La Nymphe. GEORGE SIBBALD, Surgeon."

"The unuſual number who complained on the 1ſt of the month, I attributed to much irregularity, from a payment to the ſhip, a few days before the fleet left Spithead, but underſtand that catarrhal complaints with fever, were general in the Fleet. There was nothing particular or worthy of obſervation in the complaints; in two or three days the ſick liſt, from four and ſix in number, increaſed to twenty and thirty; and in a week or ten days, to the uſual number of four or ſix, of little conſequence.

(Signed)

Santa Margarita, Feb. J. TOSH, Surgeon."

"The feveriſh complaints were, in general, ſlight, and gave way to evacuants in the courſe of three or four days. A longer continuance was attended with ſymptoms of typhus, confined to weak debilitated conſtitutions, and invariably diſappeared on the uſe of bark, wine, &c.—The cauſe was, viſibly, intemperance whilſt in harbour; the ſhip's company having a quantity of prize-money, and the complaints appearing on their return from leave.

(Signed)

Pallas, Feb. R. HARRISON, Surgeon."

"The

with advantage. I visited a case on board the Canada, with Mr. M'Curdy, with every symptom of phrenitis; it proved fatal. But what were the most alarming symptoms in this epidemic, were, the determination to the breast, oppression about the præcordia, difficult expectoration, flushing of the countenance, as if the circulation had been compleatly obstructed through the lungs: if these were not quickly relieved by a large bleeding, the patient seldom survived the third day. The pains and strictures across the breast obtained considerable ease from a blister laid over the sternum. They were, in some cases, so acute, with a feeble pulse, and other signs of debility, that æther and opium were given with the best success.

I was now a sufferer in my turn, and was seized with Catarrh in a violent degree. My confinement was the more to be regretted for four days, as it deprived me of seeing the practice of the surgeons. With other symptoms more peculiar to the disease, such as fever, obtuse pain of the forehead,

---

"The catarrh, which was for a few days very troublesome throughout the ship, appeared very early in the month, and seemed to be at its height about the 12th; since which it gradually declined; yielding without much difficulty to gentle antimonials and expectorants.

(Signed)

Orion, Feb. J. Nepecher, Surgeon."

forehead, diſcharge of mucus from the *membrana ſchneideriana*, a painful and acute ſtitch, drating from my right ſide acroſs the cheſt, and preventing a free inſpiration, gave me conſiderable uneaſineſs and alarm. Finding nothing about me indicating pulmonic inflammation, and having been ſubject to this kind of pain, after recovery from a fever at Jamaica, formerly, I was induced to try the external application of vitriolic æther. It removed the complaint in half an hour. The manner of applying it, was by pouring a little into the palm of the hand, and then laying the hand quickly over the affected part, cloſely, ſo as to prevent the too ſpeedy evaporation.

While the Fleet remained in Torbay, and moſt of the ſhips afflicted with Catarrh, a number of ſheep were, by the Admiral's orders, diſtributed for the uſe of the ſick.

A peculiar conſtitution of the atmoſphere, certainly cauſed this general Diſeaſe. There was, beſides the cold, which was intenſe, a thick haze, not like the uſual hoar-froſt, during a great part of January. Its different form, in different ſhips, cannot be accounted for: even in the ſame ſhip, among people of ſimilar modes of life, there was need of nice diſcernment in the treatment. The very quick paſſage to Cape Finiſterre, contributed not a little to the health of the Fleet. The temperature of the air, on the day we made the land,

 was

was mild as a ſummer evening. The catarrhs in ſome ſhips diſappeared almoſt at once. This fine weather was followed by a ſtrong weſterly wind, which brought us quickly to Spithead.

When a diſeaſe of this kind occurs in a fleet, the preceding ſervice, and condition of the people on board, will very much influence the proper medical treatment to be adopted. Thus, if a fleet, or ſhip, had previouſly been a long time at ſea, we would not think of carrying the evacuating method of cure, ſuch as bleeding and purging, to the length that might be warrantable under other circumſtances. When a ſailor, in harbour, has lived long on freſh proviſions, we know that he will be able to bear venæſection, as well as perſons on ſhore: but a ſea diet does not afford ſuch ſtimulant nouriſhment, and the loſs of blood may be hurtful. Wine was, on that account, very judiciouſly preſcribed by ſome of our ſurgeons, and with it, opium, æther, &c. in conſiderable doſes.

The general practice, therefore, has been to bleed, when the inflammation run high, to repeat it if the pulſe roſe after bleeding; to keep the bowels open; to give antimonial powder after venæſection, and bliſters when pain of the breaſt and difficult reſpiration were urgent. Theſe, with diluent drink, conſtituted the treatment of the Inflammatory Catarrh. When the ſymptoms

 appeared

appeared more like the low fever, a more ſtimulant plan was practiſed. The fœtid gums were ſometimes uſeful; wine, bark, æther, and opium, were given freely. Dyſpnœa was ſucceſsfully relieved by bliſters, and the bowels were kept ſoluble by very gentle laxatives.

Phthiſical habits bore the attack of this diſeaſe worſe than others, and their recovery was always tedious. I would recommend flannel cloaths to perſons of this diſpoſition, to be worn next the ſkin; exerciſe on horſeback, when it can be conveniently perſiſted in, is the famous reſtorer of catarrhal debility.

In the ſpace of five weeks, which comprehended our abſence from Spithead, from twenty-eight to thirty died of our Epidemic; a ſmall proportion out of 28,000 men. Vide the General Abſtract.

MEDICINA NAUTICA.

DYSENTERY.

THIS Diſeaſe has frequently been attended with great mortality in King's ſhips, and particularly in tropical climates. It has however, been little known in the Channel Fleet. A few caſes have appeared in ſingle ſhips, now and then; and, excepting in ſome of thoſe under the command of Rear-Admiral Harvey, at Quiberon, in the late ſeaſon, the Dyſentery had no fatal tendency. We received a few chronic Dyſenteries on board the Charon; men, juſt returned from abroad, where they had the diſeaſe for months together.

It has been long obſerved, that Seamen are peculiarly liable to this complaint, after a long train of ſtormy or rainy weather, and when the ſhip had been long at ſea. Hence it often appears at the ſame time with Scurvy, and they are frequently aſſociated in the ſame perſon. But the Flux, in theſe caſes, diſappears with the other diſeaſe, and readily yields to a freſh meat diet, the

citric acid and eſculent vegetables; without requiring any of thoſe remedies, more particularly adapted to other ſituations.

We have alſo known the Flux combined with Typhus, as in the tranſports with Lord Moira's army: on the coaſt of Africa, and in the Weſt Indies, I have ſeen it joined with intermittent and remittent fevers.

After the memorable burricane, on the [illegible] of October 1780, the Dyſentery broke out in the Berwick, then in the ſquadron under the command of Rear-Admiral Sir Joſhua Rowley. This ſquadron had accompanied the homeward-bound Jamaica Fleet to the coaſt of America, and was returning to Port Royal, when overtaken by this tremendous ſtorm. Owing to the hatchways not being ſufficiently ſecured, an immenſe quantity of water was let into the hold, and over the decks, ſo as to endanger the ſhip. After the maſts and bowſprits were thrown overboard, the motion of the ſhip exceeded all deſcription: to prevent the ſhot and other things from rolling about, or hurting the limbs of the people, while employed at the pumps, the bags and hammocks were cut down. By doing this, the bags, bedding, and cloathes of the people, were ſoaked in water; and being but imperfectly dried before they were ſlept in, did not fail to injure the health of the ſhip's company. Many of them ſlept for nights together

on

on the wet decks, overcome with fatigue, and debilitated from the want of food; for no proviſion, could be dreſſed in the boilers for ſome days. We had now been eight weeks from Port Royal; when Captain Keith Stewart, the ſenior officer of the ſhips that remained in ſight on the fifth day after the gale, thought proper to ſhape his courſe for England in the Berwick; having ordered the others to make the beſt of their way to Jamaica.

We had ſcarcely got our jury-maſts rigged, and ſail ſet, when the Flux began to make its appearance. It ſpread with great rapidity, and thirty of the beſt men on board died from it, or the Scurvy, before we made the Engliſh land, which was ſeven weeks from the time of the hurricane. During this time, the people were on a ſhort allowance of water, as well as of every kind of proviſion. The hold was filled with the ſick; and the groans of the dying, or thoſe in acute pain, were heard on the quarter-deck. Some of them died in a furious delirium, uttering the moſt blaſphemous oaths and horrid imprecations that could be conceived. This is a ſpecies of raving in diſeaſe, that I have only met with among the debaſed, moſt ignorant, and uncultivated minds. What added much to our afflictions, was a miſfortune that befell the medicine cheſt, during the gale, the greater part of its contents being deſtroyed,

ſtroyed; and by which means little was ſaved for the cure of this fatal diſeaſe.

The ſituation of the officers in point of cloathing, was little better than that of the ſeamen. Our beds were ſoaked in water, that paſſed through the ſeams of the decks; and every trunk, cheſt, and bureau, were daſhed in pieces. After being for ſome nights without ſleep, and at laſt overcome with fatigue, I ſtretched myſelf upon a wet ſail, where I lay ſound for ſome hours. It was not long before I was attacked in my turn, and had reaſon to think my complaint was brought on from ſleeping on the ſail. A midſhipman who lived in the ſame meſs, was ſeized at the ſame time. We complained of violent griping, a coppery taſte in the mouth, with ſickneſs, and inclination to vomit: the taſte of copper was ſo particular, that we could not help thinking it muſt have been taken in pea-ſoup, on which we dined, that came from the boilers. The cook, however, aſſured us, that could not happen, as they had been uncommonly well cleaned that morning. There were alſo ſymptoms of fever, which uſhered in this painful diſeaſe, and there was more or leſs of a cold and hot fit in the beginning. Towards evening, we took emetics. The midſhipman had a full vomiting, and felt little from the complaint afterwards: in my caſe, the emetic ſcarcely excited vomiting, and from

from being in much pain, had not the reſolution to encreaſe the doſe; but to this neglect had I to date a long confinement, which reduced me to the laſt ſtage of emaciation and debility. In the mouth of the Channel, we fell in with two Engliſh frigates, from one of which we received a little opium. No length of time will ever efface from my memory the relief which I obtained from the firſt doſe: ſo quickly did it operate, that I ſeemed at once to have recovered perfect health. From this time, I was relieved from the moſt painful ſymptoms, the *tormina* and *teneſmus*, by repeating the opiate, and it was full two months before I could leave it off altogether.

There was little doubt but this Dyſentery was cauſed by the beds and cloathing of the ſeamen being ſoaked in water during the hurricane; the cold weather, fatigue, and ſalt proviſions, might alſo have their ſhare in it. Seldom has a king's ſhip arrived at Spithead in a more diſtreſſed condition than the Berwick at that time: officers and men with little cloathing, emaciated, and pale, having been fifteen weeks from port; we were compared to ſo many dead bodies, that had been under water for a week, and then reanimated. Near three hundred of the ſhip's company were ill; ſome of the ſcorbutics, worn out, died by moving into the boats, and many others died afterwards at the hoſpitals.

There

There is a very painful ſymptom attends this diſeaſe; and I am ſurpriſed to ſee it doubted by one of the beſt writers on the ſubject. It is the ſtrangury, which ſometimes terminates in a total ſuppreſſion of urine. It would appear, from the almoſt conſtant teneſmus, that the rectum is protruded conſiderably; this portion of it being connected to the fundus of the bladder by cellular ſubſtance, bears it in ſome degree downwards; by which means, the mouth of that viſcus is mechanically elevated, and moved from the direct entrance of the urethra; and thus the Dyſuria Dyſenterica is produced. Whether this explanation will ſatisfy other people, I cannot tell; but it appears ſo to me.

A medical man, like other adventurers, ſometimes acquires profeſſional knowledge from perſonal ſufferings: the danger which I had eſcaped, and the diſtreſs that I underwent, made me reſolve to pay particular attention to this diſeaſe in future. Since that period, I have treated it, in a variety of caſes, on the coaſt of Africa, in the Weſt Indies, as well as in England, among ſeamen, and in moſt other conditions of life.

I believe it will happen more frequently elſewhere, than among ſailors on board, that blood-letting may be found neceſſary in a beginning Dyſentery; there are certainly, in ſome caſes, evident ſymptoms of encreaſed excitement; and probably, a tendency to local inflammation in

ſome

ſome part of the inteſtinal canal. Where the ſtomach is much affected with bad taſte, nauſea, inclination to vomit, I think an emetic adminiſtered, to excite a free diſcharge of its contents, ſhould never be omitted in the beginning: if the medicine given can be ſo managed, as to act as a purgative at the ſame time, ſo much the better. For this purpoſe, twelve or fifteen grains of ipecacuanha, with a grain and a half of tartarized antimony, divided into three doſes, and given at the diſtance of half an hour, will generally anſwer the intention; otherwiſe a ſaline purge ſhould be taken ſhortly after the emetic. This being done, unleſs ſymptoms of increaſed excitement prevent it, I always give an opiate combined with ſome antimonial preparation, with a view to open the ſkin. The patient ought to be confined to bed during its operation, which ought to be encouraged by drinking plentifully of ſome grateful liquor.

According to the urgency of pain, tormina, and teneſmus, I repeat the purgative medicine; and always follow its operation with the opiate and antimonial, or opium with ammonia. The reaſons for condemning free doſes of opium in this ſtage of Dyſentery, ſeem to have been owing to the neglect of giving a purgative before. If, therefore, the purge has not preceded the opium, the latter ſeldom fails to do harm. The griping that is commonly aggravated after the ſpace of ſix

ſix or eight hours from the taking of the opiate, can only be relieved by a briſk purge: but when the one follows the other as we have directed, the diſeaſe has rarely continued long or obſtinate. In the latter ſtage, where aſtringents have been recommended, unleſs their exhibition has been preceded by purging, they have generally done harm in my hands. The neutral ſalts well diluted, I have always found the beſt purges *.

When the Dyſentery has advanced to its [illegible]nic ſtage, as happened with myſelf, it appears to be continued more from habit than other cauſes. In my own caſe, whenever the opium was intermitted

* "In a former ſituation, I had many opportunities of ſeeing Fluxes in their worſt ſtages; which naturally induced me to pay particular attention to that diſeaſe; conſequently I took ſome trouble in giving the moſt of doctrines, I conceived at all rational, a very fair trial. I beg leave to ſay, I am decidedly of opinion with youſelf, reſpecting the opium being given in large doſes, after a few gentle purges of ſal. cathart. * You will perceive by the report above, I have had ſeven Dyſenteries in the month; four of whom are recovered, and the remaining three in a very fair way. I had formerly one hundred and twenty fluxes, during a cruize of four months, and was fortunate enough not to loſe a ſingle patient by the ſame practice. (Signed)

Orion, May 1794. WILLIAM PATTISON, Surgeon."

---

* Mr. Pattiſon here alludes to a paragraph in the ſecond edition of my Obſervations on Scurvy.

ted at bed-time, although the doſe never exceeded five grains, the liquid dejections returned, with more or leſs of griping at the ſame time. In this manner it continued with me for two months, during which I acquired fleſh and ſtrength, that at laſt allowed me to diminiſh the medicine gradually, and leave it off. Much, however, might depend on my conſtitution, and the period of lif for I was then under twenty. The cure, e, ſeemed to be effected by the opium overcoming the habit; which enabled the natural actions of the inteſtinal tube, to recover their former propenſities.

The vitriolic ſolution, ſo ſtrongly recommended by Dr. Moſeley, has always failed in my practice; nor have I found any reaſon for preferring the mercurial treatment of Doctors Houlſton and Clarke. Riding on horſeback, with other active exerciſes, and flannel cloathing, have done more in the chronic Dyſentery than any remedy which I have ſeen tried; but the early ſtage of the diſeaſe is the fitteſt period for the cure, and if omitted, pain and ſuffering are the lot of the patient.

I have only diſſected one ſubject for this diſeaſe; nothing uncommon was detected: nor do I think that the diſſections of other phyſicians, have thrown any light on the pathology of Dyſentery, ſo as to direct a better method of cure.

MEDICINA NAUTICA.

SMALL POX.

IT appears, from the Medical Regiſt[illegible] Fleet, that the Small Pox has been a very frequent diſeaſe in the ſhips. There are many reaſons for this. The frequent communication with the ſhore, and the conſtant viſiting between the wives of ſeamen and their huſbands, are generally the means of conveying the infection on board: we have even ſeen an inſtance in the Orion, of a man bringing the diſeaſe from the ward at Haſlar. Theſe are ſufficient excuſes for me taking notice of it, in a work on the Diſeaſes of Seamen.

Seamen brought up in our merchant ſervice, go to ſea, in general, very young. Many of them have eſcaped Small Pox, and while they continue on long voyages, they are exempted from all intercourſe with infected perſons; in this manner they grow up to manhood; and, when brought on board his Majeſty's ſhips, are expoſed to the diſeaſe, as we have ſeen. During a war, the

Small

Small Pox ward in Haſlar Hoſpital is ſeldom empty. This circumſtance gives great force to the arguments of thoſe enlightened and charitable members of ſociety, who are advocates for a general inoculation. What a pity it is, that ſo valuable a part of the community as our ſeamen, ſhould be ſubject to the ravages of ſo mortal a diſeaſe in their adult age. A very large proportion, in every King's ſhip, are men of this deſcription: in a ſhip of 74 guns, I have known ſeventy ſeamen, that never had been conſcious of going through the diſtemper.

Whether ſome of the evils attending Small Pox, as now narrated, might be remedied, remains for future experience to determine. It appears to me, that a general inoculation in a ſhip, or fleet, is highly practicable. I have not been informed, that any thing of the kind was ever done in a man of war, before practiſed under my directions in the Charon and Orion; but the ſucceſs which attended the meaſure, in both theſe ſhips, juſtifies the principle.

A general inoculation might be done while a Fleet is in port, by ſelecting the ſubjects into an hoſpital ſhip, or let a pavilion of Haſlar Hoſpital be allotted for the purpoſe. A week, or ten days, of ſuitable diet and regimen, are all that is neceſſary for preparation. In order to reconcile the ſeamen to this practice, it would be neceſſary to

circulate among them, in printed papers, the various arguments and information which point out the ſafety and utility of inoculation. They might be told, that they are in conſtant danger of catching the infection, whenever they go on ſhore; and the longer they delay inoculation, the hazard becomes greater. If any religious ſcruples ſhould appear, as happened in the Orion, they ought to be combated by the chaplains of the ſhip, in the manner that has been uſed [illegible] by other clergymen. There is a valuable little work on this ſubject, by the Rev. Mr. Turner, of Newcaſtle upon Tyne, written in a familiar ſtyle, and intelligible to every capacity.

When the Small Pox appear in a ſhip at ſea, where there is an hoſpital ſhip belonging to the Fleet, the patient ought to be immediately moved, and with him, every thing that is likely to imbibe infection. When ſhips are cruizing, it will be neceſſary to keep the patient at a diſtance from the ſhip's company. I have heard of Guineamen towing them in a long-boat. The boats are the beſt places in this ſituation, on the booms, or ſlung at the ſtern: centries may then be placed to prevent communication with the ſhip's company. If there are any perſons on board who have never had the diſeaſe, I would recommend inoculation as ſoon as matter can be taken from the diſeaſed ſubject. A captain and officers

officers might, by attending to this buſineſs, meet with ſome additional trouble; but it would be amply repaid, by alleviating one of the moſt fatal diſtempers that human nature can undergo.

With regard to any preparatory courſe of medicine for the Small Pox, I have only to remark, that I have but little faith in its effects of producing a mild diſeaſe. In my opinion, the artificial method of ingrafting the poiſon, is the ſole cauſe of the diſorder going through a moderate degree, both of fever, and eruption of puſtules. Whether this depends upon the ſmall quantity of variolous matter introduced, or other adventitious circumſtances, I will not decide. I think, however, when we can mend the habit of body, it ought always to be attempted. Nature, it would ſeem, is taken by ſurprize, by inoculation, and only diſpoſes a ſmall part of the ſkin to propogate the variolous matter, as if ſhe did it with a view to get eaſily ſecured againſt a dangerous diſtemper*.

* Strong mercurial purges, in full habits, are famous, during the eruptive fever: I ſuſpect that they act chiefly by the ſudden depletion which they occaſion, by evacuating the contents of the bowels.

℞ Calomel - - - gr vij.
Pulv. Jalap. - - gr xxv.
Syr. - - - - ft bol.
mane ſumendus.

In one ſeaſon I inoculated near three hundred children, all of whom came fortunately through. There was a great number of them under five months; and I think this is the beſt age for the practice, although the habit ſeems leſs ſuſceptible of receiving the diſeaſe by the common method of puncture with a lancet. I never obſerved any other diſorder, that could be certainly known to have been inoculated along with the Small Pox pus. This diſeaſe often brings to action, complaints that have not been noticed in the body before; particularly ſcrophula, and cutaneous affections. It was a very common thing for parents to ſay, that their children received ſuch and ſuch diſeaſes by this means; but I knew that they were latent in the conſtitution before.

MEDICINA NAUTICA.

RHEUMATISM,

MAY juftly be claffed among the difeafes of feamen. Their laborious duty, expofure to weather and climate, and the accidents to which they are continually liable, make this a very frequent complaint in our fhips. Hence it is often feigned for the purpofe of effecting their difcharge; and one of the chief fources of their tricks and deceptions. When this is the intention, the ftory is commonly introduced by the account of fome old hurt or fall, though it may have happened years before, in order to obtain a more patient hearing from the furgeon. The Pfeudo-Rheumatifm is, for the moft part, confined to the loins; and to ftrengthen the pretenfion of being objects for invaliding, an incontinence of urine is faid to accompany it. A perfon who has been accuftomed to hear their narratives, may eafily diftinguifh the real, from the affumed diforder: the tale is feldom contrived with

with addreſs, and it requires but a ſlight croſs-examination to detect the incongruity of its materials. Yet obſtinacy from diſappointment will occaſionally carry them to great lengths in their perſeverance; and the fictitious complaint ſometimes becomes a fatal diſeaſe. The applications of copper to their ſores has killed many. Theſe deceptions alſo afford them opportunities for making their eſcape from the hoſpitals. I have known a man, that for two or three months had never been known to raiſe his head and ſhoulders beyond an angle of forty-five degrees, with the reſt of his body; yet, when he found his purpoſe fit for execution, would get over the hoſpital-wall, and make his eſcape. Theſe tricks have, however, been leſs ſucceſsfully practiſed, and are now more rarely met with; partly from the inquiries which have taken place in the hoſpital departments, by both ſurgeons and officers; and partly from the laudable improvements in diet and neceſſaries, with which our ſick have been furniſhed in their own ſhips, that bind them by gratitude to the ſervice.

This diſeaſe appears in all ſeaſons and climates, but particularly where viciſſitudes of heat and cold are frequent. Ships leaving a warm climate, and returning to England in cold weather, when the people are thinly cloathed, often ſuffer from

Rheu-

Rheumatiſm*. A long train of rainy and ſtormy weather, in the Channel, alſo renders the body more liable to theſe pains: the muſcles of the joints, near old wounds, bruiſes, or broken bones, are the parts more readily affected with the chronic diſeaſe. The acute Rheumatiſm appears moſt often in thoſe conſtitutions liable to other inflammatory affections.

At Jamaica, in June 1784, after being ten months on the coaſt of Africa, I was ſeized with the Rheumatiſm. It obſerved a regular periodical form. About an hour after noon it was uſhered in by a febrile paroxyſm, that continued more or leſs till midnight. A ſwelling and inflammation appeared on the firſt day in one leg, but afterwards in both, over the ancle-joint, and about the upper part of the foot, attended with acute pain, which ſubſided with the fever. In the morning and forenoon I remained tolerably free

* When a ſhip returns from a warm climate to England, during the cold months, it will be great humanity in the officers to have a ſtock of warm ſlops in reſerve; for the ſeamen are not provident enough to think of this themſelves. If they have been ſome years on a foreign ſtation, their cloathing has either been worn out, or ſold, ſo that nothing but attention in their commanders can ſave them from ſuffering by cold weather.—The duty of boats is another cauſe of frequent Rheumatiſm. It is a pity that ſome accommodations for drying their cloathing could not be made at the landing-places, at every ſea-port.

from

from uneaſineſs, till near one o'clock, the fever, ſwelling, redneſs, and pain returned, and went through a courſe ſimilar to the preceding paroxyſm. This was my ſituation for ſome days; when the Rheumatiſm diſappeared, and the fever aſſumed the remittent type peculiar to that country. My confinement afterwards was long, and painful; a quick paſſage to Europe, in the Auguſt following, only ſaved me from the grave.

This diſeaſe appears to me to reſide more in the muſcular fibres than phyſicians have uſually admitted. The acute ſpecies is an increaſed degree of their excitement, attended with ſynocha. The Chronic Rheumatiſm, which follows the Acute, is the exhauſted ſtate of theſe fibres. Where the Chronic is the primary diſeaſe, it is always induced by debilitating powers, and generally in parts previouſly weakened, as, after diſlocations, broken bones, wounds, or bruiſes. Thoſe obſtinate complaints which cauſe permanent lameneſs, may be attributed to a torpid ſtate of the muſcular power; or even a paralyſis of the muſcle, which becomes no longer ſuſceptible of ſtimuli; or has loſt that diſpoſition which fitted it to recover its exhauſted ſpirit of animation. The pain is felt at the joints, as being the centre of motion.

The cure of the Acute Rheumatiſm is like that of all other inflammatory diſeaſes. Bleeding is, therefore, the principal remedy; and, in proportion to the early time in which it is perform-

ed,

ed, it will do the more good. It is at the very firſt attack of the fever and pain, that the ſucceſs is moſt certain; a large bleeding, ſuited to the ſtrength of the patient, will ſave much future pain. If that has been neglected for the firſt days of the illneſs, the effects of venæſection become more doubtful; and the danger of converting it into a chronic diſeaſe, ought to be carefully weighed before it is performed. This being done, every thing beſides that can reduce the powers of the body, ſhould be immediately practiſed. Total abſtinence, or confining the patient to water gruel alone, are proper; and the belly muſt be emptied by briſk purges, which include mercury in their compoſition. All external applications at this time are of ambiguous efficacy, and I have ſeen them do much harm.

The cure of Chronic Rheumatiſm has, I believe, been generally conducted on a ſudorific plan. But however extenſive this practice may have been, the propriety of it appears to me ſomewhat queſtionable. Expoſure to cold after being over-heated, wet cloathes, damp beds, or damp lodgings, a part of the body being expoſed while the reſt is kept warm, &c. are among the cauſes which moſt commonly produce it: a dry ſkin, and diminiſhed perſpiration, are more obſervable than happens in other diſeaſes. Theſe cauſes, joined to the appearance of the ſurface, ſeem to have

have led phyſicians to the adminiſtration of ſudorific medicines, with a view to reſtore the diminiſhed cutaneous diſcharge; and to this, the method of cure has been almoſt confined. If I was to ſpeak of the ſucceſs of the ſweating proceſs, in my own hands, and what I have ſeen in the patients of other phyſicians, in ſome thouſands of caſes, I would very much doubt, whether any of them was relieved by medicine. In ſome of theſe caſes, the ſweating has been continued for nights and days, without the ſmalleſt abatement of pain; but with an evident increaſed degree of debility, which I alſo conſider an increaſed degree of the diſeaſe. Inſtead, therefore, of wearing out the already exhauſted ſenſorial power, by diſproportionate ſtimuli, I would have the body gradually recruited by nouriſhing diet, gentle exerciſe, or ſuch as the patient can bear, a warm climate, flannel cloathing next the ſkin, to be frequently changed, and ſtimulating medicines accommodated to the ſtrength of the patient. When flannel cloathing is wore next to the ſkin but a few days, it ceaſes to perform many of its good offices. The perſpirable matter ſoon ſoftens the hairy part of the cloth; for I conſider it as a conſtant fleſh-bruſh to the ſurface, which ſtimulates the ſkin, and excites its excretories, to ſupport an increaſed action: beſides, it confines the heat of the body more than linen or cotton, by

§ which

which means the variations of weather, and a changeable atmosphere, are sustained with impunity.

The best cures which ever came under my observation, in Chronic Rheumatism, were the cases brought in the Charon's hospital, from Rear-Admiral Harvey's squadron, in Quiberon-bay, in November 1795. These were seamen much debilitated: but the comfortable and cleanly lodgings of the hospital ship, with a diet agreeable, and nourishing beyond what is usually met with in the hospitals on shore, soon restored them, with the assistance of very little medicine*.

With respect to external applications in the Chronic Rheumatism, they appear to act by exciting

* The Charon's diet for the sick, at sea, partook of the oddities which have marked the character of the Physician to the Fleet; it was not modelled to the rules of either a steward, or purser, but the appetite of the patient. Fresh mutton broth, with abundance of vegetables, was prepared every day: the meat roasted, or made into a chop, if it was preferred: egg flour pudding, or rice pudding; occasional custards; eggs dressed in different ways; soft bread, baked daily; pea-soup, nicely seasoned; pan-cakes; apple-dumplings; orange marmalade; pickles of different kinds; sowens, with wine and sugar, a supper for convalescents; tea, coffee, or cocoa; wine, porter, punch, negus, &c. &c. Nor was there ever found an excuse for not having all this at sea.

December 9th. Captain Faylor, of the Fame, assures me, that molasses mixed with the flour-pudding, is an excellent substitute

citing the ſkin, and other parts near the ſeat of pain; and are to be much aſſiſted by the friction uſed in their application. Æther, with the hand cloſely laid over the ſpot, to prevent evaporation, acts as a gentle ſtimulant. Bliſters ſhould always be removed before the veſicles riſe: otherwiſe they act as unnatural ſtimuli, by exciting the neighbouring veſſels beyond meaſure.

Sea-bathing, in the proper ſeaſon, and exerciſe daily perſiſted in, are the beſt ſupporters of the reſtorative regimen, which we have recommended in this capricious and obſtinate diſeaſe. I cannot help lamenting, that a ſuit of baths is ſtill a deſideratum at our hoſpitals.

ſubſtitute for eggs: with this addition, I beg leave to call it an

USHANT PUDDING,

from having been highly reliſhed in the late cruize.—I muſt now requeſt, that the Officers of the Fleet will communicate this intelligence to the ſeamen, as the Lords of Admiralty have determined, that molaſſes ſhall form a conſtant and permanent part of ſea-diet. One of our Admirals emphatically calls it the *ſafety* of the Britiſh Empire.

MEDICINA NAUTICA.

INTOXICATION.

THE frequency of Intoxication among Seamen; the diseases which it produces; and the number of deaths which happen in consequence, sufficiently point out this subject as an object of medical inquiry. Many fatal cases have occurred in the Fleet, and one under my own eyes in the Charon. There are many circumstances connected with a sea-life, which lead to the indulgence of inebriating liquors, and often confirm it into habit. The early entrance on ship-board, whether in his Majesty's service, or that of the merchants, before an education has been compleated to regulate the moral conduct; the bad example of others; and the abominable custom of grog-drinking, lay the first foundation for this most pernicious practice: to all these may be added, those merry-makings and gusts of joy, which the thoughtless sailor plunges himself into, when he returns from a long voyage, and with plenty of money in his pockets. Inconsiderate beings! after having braved both the battle and the

the ſtorm, how often does the Lethean cup arreſt, that courage, which feared neither the arm of man, or the war of elements!

This holds up another argument for extending the uſe of malt liquors in the ſeaman's diet; and could be eaſily done, by the method recommended in a former part of this work. It does not appear, that habits of drunkenneſs prevail more in the navy than formerly: I am even informed, from good authority, that ſeamen, when on ſhore on leave, at this time, confine themſelves more to the uſe of ale and porter, than was obſerved on former occaſions. Now it would be but a ſmall attention on our part, to encourage the indulgence of malt liquors; health and morality claim it from us: there are facts in theſe pages, that point it out in language that cannot be reſiſted; and I hope the Board of Admiralty will ſee the neceſſity for adopting a meaſure ſo ſalutary.

It was my acquaintance with a ſea-life, and from having known ſo many fatal caſes of Intoxication, that induced me to make it the ſubject of my Inaugular Diſſertation at Edinburgh, in 1788*. Since that time, I was encouraged to proſecute the work on a more extended plan; but before

* "Diſſertatio Medica Inauguralis: Quædam, De Ebrietate ejuſque Effectibus in Corpus Humanum complectens. Edinburgi, 1788."

before I had compleated my taſk, the war with France broke out, and I was obliged to leave it, without any fixed reſolution of following it up at a future time. What I have therefore to offer here, will be a few practical remarks, more immediately connected with my preſent undertaking.

We have often known the bad effects of Drunkenneſs, in prediſpoſing the body to receive contagion; it has been in our late tranſactions particularly marked by Mr. M'Callum of the Valiant, and Mr. Kenning, of the Invincible. In Scurvy, we know it to be equally hurtful, but ſingularly ſo, when occaſioned by ſpirituous liquors. In ſituations where ſeamen are expoſed to marſh effluvium, Intoxication has been one of the chief cauſes for rendering it active in the body: it cannot therefore be too ſtrictly forbidden by officers, who wiſh to preſerve a healthy ſhip's company.

The treatment of the Drunken Paroxyſm, or fit of Intoxication, is the moſt frequent part of a navy ſurgeon's duty; and it requires inſtant relief. The correction of habitual drunkenneſs in ſhips, belongs to officers; the example of ſobriety in themſelves, the due obſervance of good order and diſcipline, with the exemplary puniſhment, are the moſt effectual means for this purpoſe.

When there is danger of ſuffocation*, as it is called, the patient ought to be placed in a poſture, that may keep the head and ſhoulders erect: it ought to be in a place freely ventilated and cool; the neckcloth and collar of the ſhirt muſt be unbound, and no perſon ought to crowd round the ſpot, but thoſe who may be wanted as aſſiſtants. It is of ſome importance to know the nature of the liquor that has been drank, and the quantity. It will always be proper to provoke vomiting as ſoon as poſſible; and this will be eaſily accompliſhed by tickling the throat with a feather, or a finger. If raw ſpirit has been taken in great quantity, and the patient is able to ſwallow, he may be allowed to drink plentifully of water either warm or cold, and then the tickling of the throat, to urge the vomiting, may be renewed. This ought to be continued, till the whole contents of the ſtomach are evacuated.

When there is danger of apoplexy, which is to be diſtinguiſhed by the bloated countenance and ſtertorous breathing, blood-letting becomes indiſpenſable. Blood ought therefore to be taken from the temporal artery, the jugular vein, or the arm, from a large orifice, in quantity as much as the perſon can bear. It muſt however be limited occaſionally, by weighing the ſtate of debility

* A ſlighter degree of apoplexy.

debility that will ſooner or later ſucceed. At the ſame time cold applications ought to be laid on the head, ſuch as a cloth wrung out of the coldeſt water, and frequently changed. Snow or ice may be applied, if at hand: but the water for this purpoſe may be cooled by common ſalt or nitre, and the cloths dipped in during their ſolution. It is ſurprizing to ſee how quickly danger is removed, by unloading the ſtomach, and it is by far the moſt certain remedy. A ſailor belonging to the Vengeance, then lying in Prince Rupert's Bay, Dominica, in June 1793, drank near three pints of new rum, and was ſaved by exciting vomiting; the debility that remained was very great.

When a drunken perſon has ſlept long, expoſed to cold or rain, the treatment will very much depend on the degree of collapſe or debility, that has taken place from the exceſſive exhauſtion of ſenſorial power. If the extremities are cold or froſt-bit, it will be proper to rub them well with ſnow or very cold water, and not to bring him too quickly into a warm room, or near a fire. The exhibition of any thing by way of medicine, muſt be done with caution, and in very ſmall quantity at firſt. It may be then gradually increaſed, as ſtrength revives; and diet and medicine adminiſtered, as cuſtomary in ſimilar ſtates of weakneſs.

I have frequently ſeen a drunken ſailor fall overboard, and when picked up, be perfectly ſober. I have not had ſufficient experience to know how far this might be imitated in practice; but I have a notion, that ſprinkling water on the body might be uſeful, as we ſee good effects from cold applications to the head.

MEDICINA NAUTICA.

SCURVY.

WHEN I laſt had occaſion to lay my thoughts on this Diſeaſe before the Public, I could not help congratulating the Country and myſelf, on the proſpect of exemption from it, in the Channel Fleet*. Shortly, however, after this work had iſſued from my hands, unforeſeen cauſes began to operate, which in a few weeks produced a more general Scurvy than had been ever known on home ſervice.

The froſt in the month of December 1794, ſat in extremely ſevere; and a cold north-eaſterly wind prevailed for three or four months. About Chriſtmas, the French taking advantage of our fleet going into port, aſſembled, with aſtoniſhing celerity, at Breſt, a fleet of thirty-four ſail of the line, beſides frigates, with which they put to ſea, in order to intercept our outward-bound Weſt India convoy, under Rear-Admiral William

* "Medical and Chemical Eſſays. Jordan, London, 1795."

 Parker.

Parker. Many of our ſhips were refitting; ſome of them in dock, the whole having ſuffered from a long courſe of boiſterous weather, in September, October, and November preceding. It was therefore with great exertions that a Fleet of thirty-three ſail of the line were able to ſail from Spithead on the 26th of January.

In the mean time, the enemy's fleet at ſea had experienced a continued ſtorm, from which it was reported that five ſhips of the line had foundered, with their crews, and that the others were much diſabled. In this condition they returned to port.

The Channel Fleet having put into Torbay, from contrary winds, experienced much cold weather, and a dangerous gale of wind from the ſouth-eaſt. At laſt a northerly wind brought the large convoy out of Plymouth: Earl Howe having ſeen the outward-bound ſo far to the ſouthward as Cape Finiſterre, returned to Spithead on the 26th of February.

While the Fleet lay in Torbay, no freſh beef was ſerved to the people, but mutton for the uſe of the ſick only; by which means we were full five weeks on ſalt proviſions, when the firſt freſh meat was allowed at Spithead. During this time, an Epidemic Catarrh had raged in every ſhip, and the debility which followed it, had certainly ſome

ſhare in prediſpoſing the body for the attack of the Scurvy *.

On our return to port, from the number of cattle that had already periſhed from the rigour of the ſeaſon, beef was much riſen in price, and the contractors were not able to purchaſe. The Victualling Board, on this account, thought proper to diſpenſe with the uſual allowance to the ſhips, and reduced it to one day's freſh meat in the week. Whether there was more œconomy, in point of expence, in giving ſalt proviſions, than freſh, is matter of doubt with me; but this I well know, that ſuch a change in the victualling of a large fleet, ought never to have taken place without conſulting officers on the ſpot.

Independent

* "Catarrhal complaints were the moſt prevailing during the month of March and part of April, many of which terminated in Scurvy. During our late cruize, numbers were afflicted with that malady: the citric acid, to the quantity of three ounces per day, cured many, and always ſtopped the progreſs of the diſeaſe. It was given with wine in the following manner:

℞ Vin. Rub. - ℥ij.
Suc. Limon. - ℥i.
Saach. - - ʒij. M.
Ft. hauſt. ter die ſumendus.

Some of the Catarrhal complaints terminated in remitting fever.

(Signed)

W. Walker, Surgeon."

Hannibal, April 1795.

Independent of the effects which an extreme degree of cold, long continued, may poſſeſs in prediſpoſing the body to Scurvy; it had at this time deſtroyed all vegetation in the neighbourhood of Portſmouth. Even the bum-boat women, who are in the practice of bringing vegetables to ſell in the ſhips, could procure little of the kind, or at a price that put them out of the reach of the ſailor.

In this ſtate of the Fleet, my fears were very early alarmed. I recommended the immediate ſtop to be put to the uſe of ſalt proviſions; and early in March laid before the Admiral, what changes of diet I thought would be uſeful under the preſent circumſtances. They were tranſmitted to the Admiralty; and by their Lordſhips referred to the Victualling Board. The Commiſſioners of Victualling, *diſapproved* of the whole, the uſe of molaſſes excepted; but a ſupply of them did not come in time to our relief.

A ſquadron, of five ſail of the line, ſailed on the 17th of March, under Admiral Colpoys; to each of theſe ſhips I ſent a caſk of lemon juice; at the ſame time informing the Admiral of my reaſons. This ſquadron, after a month's cruize, returned to port with many ill of Scurvy, and a general diſpoſition to the diſeaſe throughout the ſhips; ſome very bad caſes were even ſent to Haſlar, from

from the Aſtrea frigate. (Vide General Abſtract of Health.)

A ſquadron, of four ſail of the line, returned from the North Sea, under Rear-Admiral Harvey. The Prince of Wales, with a raw crew, and a bad party of ſoldiers, inſtead of marines, on board, had ſent fifty ſcorbutics on ſhore to Deal Hoſpital; many of theſe in the laſt ſtage of the diſeaſe, five of whom periſhed in the boat. The cold of the North Sea is generally reckoned more ſevere than in the Channel; hence the Prince of Wales and Ruſſel, ſeem to have had worſe caſes than with us at Spithead.

The Scurvy, towards the beginning of April, had made very conſiderable progreſs, particularly in the Excellent, Minotaur, and Invincible. Theſe ſhips were part of a ſquadron, ordered to ſea, under the Honourable Admiral Waldegrave. I had previouſly repreſented the ſtate of the Fleet to the Commiſſioners of Sick and Wounded; and demanded a ſupply of lemon juice, or the fruit in its entire ſtate, to be ready on board the hoſpital ſhip, to ſerve the detached ſquadrons as they went to ſea. This ſupply not having come in due time, in conſultation with Admiral Waldegrave, and by his order, I purchaſed at Portſmouth ſeventy pounds worth of lemons and oranges, which were diſtributed to the ſquadron. At the ſame time I informed the Sick and Wound-

ed

ed Board, that I did not think these ships were in a condition to go to sea, without being provided with articles for the cure of Scurvy. These ships continued at sea seven weeks, and towards the end of the cruize had a further supply of fruit, which the Admiral ordered to be purchased from a Swedish vessel. The consequence of these precautions were, that many cases were cured at sea, without a single death: but the crews of the whole were much in need of fresh meat and other delicacies, when they returned to port.

Admiral Waldegrave was so obliging as to transmit to me, copies of remarks on the fruit, in the treatment of Scurvy by the surgeons of his ships. It was observed in each ship, that by changing the beer for grog, had a quick effect in encreasing the number of Scurvies. On board the Excellent, much attention was paid to this circumstance. Captain Collingwood tried it in different ways, and kept a diary of the sick list. Mr. Scott the surgeon, in his report, says, that "they sailed with ten scorbutics in the list; "that this number fluctuated a little while beer "was served; but when half beer and half grog, "it increased to twenty or thirty. When all "grog or wine, it encreased from forty to fifty-"six. He concluded, with the uniform testi-"mony of others, by saying, that the lemons were "a certain cure." The testimonies of the other surgeons,

surgeons, viz. Mr. Kent of the Marlborough, Mr. Dods of the Tremendous, Mr. Bell of the Minotaur, Mr. Sibbald of the Nymphe, and Mr. Drew of the Blonde, were to the same effect *.

* REPORT of the Effects of LEMONS on board His Majesty's Ship Invincible.

"It may be, in some measure, necessary, just to mention the state of health, on board the Invincible, previous to our sailing on the late cruize; in order to shew, in a clear point of view, the excellent effects of the Lemon and Orange, with which we were supplied.

The Scurvy (the only complaint to be mentioned here) made its appearance at Spithead in the first week of April, in a severe degree. Five patients were sent to the hospital; others variously ill, to the number of eighteen, at the time of sailing; four of that number were incapable of duty. By the last of the month, ten more had applied. Those that were worst, took three lemons and one orange, daily; and the others, two lemons. In every instance, after the third day, and sometimes sooner, they began to recover, and were shortly well.

In the beginning of May, patients continued to come down, and were treated in the same manner, with equal good success; in the course of the month fifty-six had applied, and were recovered, or nearly so: in the latter end of the month, the fruit was all expended; but there still remained a few gallons of lemon juice, which lasted until the 2d of June. Patients continued to apply, and two of those that had been recovering before the lemons were expended, got worse in the short interval from the 2d to the 5th, the day on which a fresh supply of lemons was received. Their complaints were soon checked by the fresh fruit; it was not found that they recovered so fast by

From the circumſtances juſt narrated, it will appear ſatisfactory, that my fears were not groundleſs. The prevention of Scurvy was a great object in a Fleet, becauſe we are not aware of the exertions of a reſtleſs enemy. But the period was now arrived, when the neceſſity of checking this ravaging diſeaſe became more apparent. It pervaded every ſhip; and as the cauſes which produced it were general in their operation, ſo it was reaſonable to infer, that every ſeaman in the Fleet

---

by the juice, though it was given, in ſome caſes, to a pint per diem. To this time, thirty-two had applied; and every day two or three, variouſly tainted, had appeared.

"It does not appear, at preſent; that we ſhall have occaſion to ſend any men to the hoſpital for Scurvy, though I am *poſitively* of opinion, that if we had not been ſupplied with the fruit, many of the ſhip's company muſt have ſuffered greatly, or, perhaps, died.—The numbers that complained, and cured, or nearly ſo, are, in April, twenty-eight; May, fifty-ſix; and in June, thirty-two: in all, one hundred and ſixteen.

(Signed)

June 8, 1795. T. KENNING, Surgeon."

"*Note.* In the ſketch of the good effects of the lemons ſupplied in the late cruize, I have not mentioned any thing of the advantage our men had in point of regimen. Previous to our ſailing, Captain Pakenham, according to his uſual liberality, purchaſed five guineas worth of onions, and put them under my care. A quantity of freſh mutton was alſo ſent every day to boil with the portable broth. The ſick had wine inſtead of grog. *T. K.*"

Fleet ought to partake of the means of prevention and cure *.

In my repreſentations I took upon me to explain our condition to the utmoſt minutiæ of the cauſe, as well as the method moſt likely to give us relief. The Lords Commiſſioners of Admiralty, were therefore pleaſed to order every thing which was demanded. The freſh beef was ſerved according to the uſual allowance, and the ſalt proviſions withheld. A large ſupply of lemons and oranges were ordered to be ſent from the Sick and Hurt Department, equal to our wants. In addition to all theſe, ſallad was ordered to be procured, by way of aſſiſting the other means of prevention and cure. Vegetation was very late, from the coldneſs of the ſpring months; but what could not be commanded in the gardens round Portſmouth, was brought from Fareham and other places. In my official letters, I took care to inform their Lordſhips, that I had attended the vegetable ſtalls on market-days, as well as the gar-

* "You will no doubt obſerve with pleaſure, the few ſcorbutic patients ſent to the hoſpital, in compariſon with the number that have complained of that diſeaſe. This I can attribute to nothing elſe, but the timely ſupply of fruit and vegetables, which were obtained by your order, and which had the moſt ſpeedy and deſirable effect.

(Signed)

Robuſt, May 31, 1795. JAMES TURKINGTON, Surgeon."

dens

dens in the neighbourhood, and had there found abundance for our conſumption. We were, therefore, from the 31ſt of May, ſupplied with near five thouſand weight of ſallad every day, which was diſtributed, under my own eye, to the different ſhips at Spithead. The good effects of theſe refreſhments were aſtoniſhing ; we had only to regret that they were not ſent ſooner. They do not reſt on the official teſtimony of the ſurgeons only ; the whole of our officers attended to the recovery of their people, with every mark of affection : they had fought and conquered together, and were now from habit like perſons of the ſame family.

About two hundred men in Scurvy, had been ſent on ſhore, during the early appearance of the diſeaſe ; but from the time of being ſupplied with freſh meat, fruit, and vegetables, it was not neceſſary to move them from the ſhip. The officers and ſurgeons agreed, that their men were cured in a ſhorter time on board. But more urgent reaſons required to keep them on board ; deſertion was prevented, indolent habits ſoon learned in our hoſpitals, were not ſo apt to appear under the eye of their own officers, and as equal juſtice would be done to the cure ; our ſhips thereby remainded ready for ſervice.

Thus, were thoſe valuable men fitted and recruited for duty, at an expence to Government

too

too trifling to be mentioned. It was amply repaid, in a very ſhort time, by the capture of three ſail of the enemy's line, in the very mouth of a French harbour, by Lord Bridport. But it ought to be remembered, that theſe ſhips could not have ſailed a week ſooner, from the people that were laid up with Scurvy bearing a large proportion; to ſuch an extent had it prevailed every where.

Some deaths happened at the hoſpital in this diſeaſe; I believe not more than one or two; but not a ſingle one on board, either at ſea or at Spithead.

Although the health of the people was ſo much recruited when Lord Bridport ſailed; yet it was plain, that the diſpoſition to Scurvy was not ſufficiently corrected, which would have required a continuance of the ſallad for a longer time. But to guard againſt the effects of ſalt diet, and any accident that might detain the ſquadron at ſea, every ſhip was ſupplied with thirty gallons of lemon juice from the Charon, beſides ſome half cheſts of fruit, to thoſe that were moſt in danger from a return of the complaint. The London, Valiant, and Coloſſus, that had ſuffered ſo much, were now in perfect health.

The weather, for the ſeaſon, was cold in the early part of the cruize. On the 10th of July, the hoſpital ſhip parted from the ſquadron, having received the ſick, and forty-five wounded men, to

to carry home. At parting, ſome of the ſurgeons were ſerved with an additional ſupply of lemon juice from the Charon, leſt it ſhould be wanted before our return.

On the 15th of Auguſt we returned to Lord Bridport, having on board a number of ſheep, vegetables, &c. I viſited every ſhip in the courſe of the day, and found the Scurvy beginning in all; even the frigates had many caſes of it.

We have ſeen, in Admiral Waldegrave's ſquadron, the rapid increaſe of Scurvy, as ſoon as the beer was done; it was alſo obſerved in Lord Bridport's *. I have even remarked at Spithead, ſome ſhips, that indulged the ſeamen more than others with ſpirits from the ſhore, have on that very account a longer liſt of ſcorbutics, and with more aggravated ſymptoms. This fact gives conſiderable force to my former arguments on the theory of Scurvy. The uſe of ſpirits in the drink

* This is an incontrovertible argument, in favour of my propoſal for beer of a ſtronger body. A ſhip would be able to carry eight weeks allowance to ſea: if the cruize or paſſage was longer, it might be ſerved alternately with wine; by which means, a ſhip going to the Eaſt or Weſt Indies, might prolong it to their arrival at the place of deſtination. We ſhould then have no condemned beer; for a little more hop, and being ſtronger in quality, would make it keep. I would have a quart ſerved in the forenoon, and another in the evening. In the warm ſummer of 1794, the beer that became unfit for uſe in our Fleet, exceeded all precedent for the immenſe quantity.

of

of the ſailor, called *grog*, manifeſtly tends to abſtract the oxygene from the body: from a deficiency of this principle, I apprehend the diſeaſe is produced *.

After Lord Bridport's ſquadron had been ten weeks at ſea, it then appeared how much the ſafety of our men depended on the citric acid. There was not a caſe, in which it was given, where it did not produce a cure in the ſpace of a few days †.

The Robuſt, at anchor in Quiberon Bay with Sir J. B. Warren, was obliged to leave the ſtation from becoming ſo over-run with Scurvy. Some of her people ſunk under it, from not ſending to the Charon for a freſh ſupply of the lemon juice ‡.

Vinegar was carefully ſerved to the meſſes of ſeamen throughout the ſquadron, to be uſed with the ſalt meat: yet in thoſe ſhips where the men

* Obſervations on Scurvy, ſecond Edition. Longman, London.

† "I have no remarks worthy of inſertion, except additional proofs of the moſt happy effect, from the uſe of lemon juice: not only in ſcorbutic affects of the extremities, but in pneumatic attacks, when a ſcorbutic diatheſis prevails.

(Signed)

Pallas, *Sept.* 20, 1795. R. HARRISON."

‡ See Mr. Turkington's Report in the General Abſtract of Health.

took it in large quantities, it was not obſerved to retard the advancement of the diſeaſe. Even porter failed to cure. There was now another cauſe that accelerated the approach of Scurvy. The ſhips had been ſo long at ſea, that there was a neceſſity for curtailing the allowance of water: the number of ſcorbutics increaſed in a great proportion; and the London and Prince George were obliged to leave the Fleet.

Theſe ſhips made for the firſt port, and arrived at Plymouth in the beginning of Auguſt. Mr. Smith, of the London, ſent eighty caſes of the Scurvy to the hoſpital, and thirty in other diſ-eaſes. Mr. Harris, of the Prince George, ſent four men in various complaints. The purſer of the latter ſhip was generous enough to ſupply ſo large a proportion of vegetables, that two hundred ſcorbutics were cured on board, and the diſeaſe effectly ſubdued among the crew. The condition of the two ſhips, both ſecond rates, affords a valuable leſſon on ſervice: the London not having the means of curing her people on board, by having only an acting purſer, who was not empowered, lay inactive, for a length of time, in Plymouth Sound; and many of her men never returned from the hoſpital. The Prince George, from the bounty of a ſingle individual, was thus enabled to cure her ſeamen in the ſhip, and ſailed for Portſmouth, in leſs than four weeks, in perfect health,

health, to receive the flag of Rear-Admiral Christian, destined for the West Indies. Thus we see, as certain measures predominate, that the Navy of Great Britain may be occasionally disabled, or rendered active.—Reasons similar to those now assigned, made the Robust leave sixty men at Haslar, when she sailed a second time for Quiberon Bay. This is one of the greatest misfortunes that can befall either a ship, or the people left behind *. The ship's company is replaced by draughts of raw men from guardships, or another ship is broke up to recruit the other. The sick that were left on shore, when recovered, are sent to a guardship, perhaps not famous for good order; and in the end they are scattered into strange ships, where they have a new acquaintance to form, and where new officers, perhaps, inculcate very different modes of discipline to what they have been accustomed: such are the resistless arguments that may be produced, to

* The Anson frigate, Captain Durham, one of Sir J. B. Warren's squadron, was obliged to go to Plymouth in July 1795, being overcome with Scurvy. She landed eighty seamen, and was under the necessity of leaving a number behind, when she sailed for Quiberon Bay a second time. Not having received vegetables while in port, sufficient to subdue the general taint among the crew, the disease quickly re-appeared; ana nad t not been for very large supplies of lemon juice from the hospital ship, she must either nave returned to England again, or buried half ner people in Scurvy.

 justify

juſtify the propriety of ſerving the ſeamen with every comfort in their own ſhips *.

On the 19th of September, Lord Bridport's Fleet arrived at Spithead. The only diſeaſe that was known in the ſhips, was the Scurvy. In the General Abſtract of Health, I have mentioned the number in each ſhip; but every one on board might be conſidered as labouring under ſome degree of the diſeaſe.

Large ſupplies of vegetables were ſerved throughout the whole; and from the quantity of lemon juice being diminiſhed, the ſurgeon of the Charon was directed to purchaſe, at the Iſle of Wight, fifty buſhels of apples, in the immature ſtate. The lemons indeed were now ſo ſcarce, and the conſumption of the juice had been ſo great, that little was left in the kingdom. We were there-

* Mr. Perry, then ſurgeon of the Adamant, ſent me ſome Spaniſh *onions*, which he had brought, in the winter, from Cadiz. In order to preſerve them, he cut the root off to the quick, and applied a ſlight ſolution of lunar cauſtic to the wound, which checked their vegetation ſo much, that one of them lay in my cabin window for ſix months, without ſhooting. This philoſophical experiment may be eaſily accompliſhed by a hot poker, or any piece of iron, with which the roots ſhould be effectually ſeared. Country people are in the cuſtom of running a red hot knitting needle from the root to the top of the onion, which anſwers better. Theſe proceſſes preſerve this vegetable for a length of time, and as it is one of the moſt uſeful at ſea, they cannot be too generally known.

fore

fore very glad to procure the apples, as a ſubſtitute. The Royal Sovereign, in particular, reaped much benefit from them, and did not ſend a ſingle patient on ſhore. Mr. Kein found his people well ſatisfied: I was indeed glad of the change of fruit; for I was tired with ſeeing the poor fellows drinking conſtantly of the lemon juice. The cure was every where ſo compleat in ten days from the arrival, that we had nothing left, but the ſlighteſt remains, to ſhow Earl Spencer, when he viſited the Fleet on the end of the month.

On the 6th of October, the hoſpital ſhip joined the ſquadron under Rear-Admiral Harvey, off Belle-iſle; when the ſheep, vegetables, apples, lemon juice, and porter, was diſtributed to the ſhips for the uſe of the ſick. This ſquadron put into Quiberon Bay, and lay at anchor there, except a ſhort cruize, till the end of December. During this time, freſh ſupplies of cattle, ſheep, and vegetables, were frequently ſent out; ſo that the Scurvy was kept under, or cured when it appeared, with little trouble, by the lemon juice*.

Ee 3 These

* "I am opinion, that the lemon juice that was ſerved out to our people three or four times a day, diluted with about two ports of water, and a ſuitable proportion of ſugar; with the timely ſupply of vegetables and freſh meat, received while the Fleet remained in the Bay, and iſſuing of wine a conſiderable part of the time, checked, and in a great meaſure prevented,

These ſhips came to Spithead on the 2d of January 1796, and with a ſquadron, juſt arrived, under the command of Vice-Admiral Cornwallis, were ſupplied, on freſh-meat days, with a large allowance of vegetables. This allowance was continued to all our ſhips, for a fortnight after coming from ſea. From this period we may date the extinction of Scurvy in the Fleet.

We have thus ſeen, from the effects of a cold and rigorous winter, the impolitic and inconſiderate meaſure of reducing the allowance of freſh beef, in harbour, and the deſtruction of vegetation by froſt, a Scurvy induced, ſo general in its extent, as to endanger the ſafety of the whole Channel Fleet of Britain. The practical inferences to be drawn from this narrative are obvious.

It appears highly expedient, that a Fleet juſt come from ſea, ſhould have the people recruited for future ſervice in as ſhort a time as poſſible. However

---

ed, our people from being afflicted with Scurvy, and other diſorders.

(Signed)

R. Forrest, Surgeon."

Prince of Wales, Jan. 2, 1796.

N. B. Thirty caſes of Scurvy appeared in the Prince of Wales during this abſence of nineteen weeks from England; but there were more in the other ſhips of the ſquadron.

T. T.

However vague and uncertain the records of naval tranſactions left this point on former occaſions; the late occurrences of the Channel Fleet have ſufficiently eſtabliſhed the fact, that Scurvy can always be prevented by freſh vegetables, and cured effectually by the lemon, or the preſerved juice of that fruit.

In the General Abſtract of Health, I have mentioned, that Dr. Archibald Thompſon, of the Valiant, found, upon comparing his caſes, that not a man who ſhared of the large allowance of lemons and ſallad at Spithead, towards the end of May and the beginning of June, had the leaſt ſymptom of Scurvy during the long cruize with Lord Bridport. Mr. John Smith, of the London, on comparing his caſes, found, that only five of all that he ſent on ſhore to Plymouth Hoſpital, were of the number who partook of the former refreſhments at Spithead, and for theſe he gives reaſons. I think it proper to mention theſe two ſhips, becauſe they ſuffered more than others, from the diſeaſe in April and May. Their reſpective ſurgeons took alſo much trouble to aſcertain the fact, with ſufficient clearneſs, on my ſuggeſtion*.

Whatever,

"*London, Jan.* 6, 1796.

* "SIR,

"According to your requeſt, I have examined my books very carefully, and find only five men who had the Scurvy in

Whatever, therefore, may be the theory of sea-scurvy, we contend, that recent vegetable matter, imparts a *something* to the body, which fortifies it against the disease: and that in proportion to the quantity of this *something* imparted, making allowance, at the same time, for external causes, which counteract its effects on the constitution; the symptoms will sooner or later appear. The preservative means ought, therefore, to be attended to, and we ought to trust only to the vegetable acid, when we can do no better.* The

---

April and May, sent to Plymouth Hospital in September, after more than three month's cruize. Three of them had a scorbutic flux; and two had blotches, &c. on their legs, with other symptoms. One of these had but lately recovered from a venereal complaint, being six weeks under cure: the other was always of a sickly habit.

"Two out of the eighty sent to Plymouth Hospital, in September, for Scurvy, had been at Haslar Hospital in April and May. One of them was sent for a scorbutic flux; the other had blotches. &c.

I am, SIR,

Your most obedient servant,

(Signed) *John Smith.*"

To Dr. TROTTER,

Physician of the Fleet."

---

* It is the custom of service, for the purser to order his steward to buy vegetables, greens, or cabbages, for the fresh beef broth out of his necessary money: but there is no fixed quantity. There is a necessity for fixing the proportion, cost what

juice of lemons long continued, tends to weaken the ſtomach and general habit, and produces emaciation in proportion to the length of time it is uſed.

We have alſo found, that the preſerved juice is very inferior to the fruit, in its intire and recent ſtate; although, I believe, that great attention was paid to its preſervation, and when there could be no ſuſpicion of vinegar, or other acids, fraudulently added. Three dozen of ſound lemons did generally as much as a gallon of the juice. Yet we have ſeen, in Mr. Moffat's report, that he had cured many with the juice that had been near two years ſqueezed from the fruit*.

We have, from this practice, eſtabliſhed another fact, of the firſt importance in naval operations. We have often heard people talk of land air, and land recreations, for the Scurvy. There is

what it may. Why is an article of diet, that is the beſt ſecurity againſt a fatal diſeaſe, left to ſuch uncertainty, or liable to be withheld by any individual, when its price becomes a little higher than common?

* This general Scurvy in the Fleet, would have afforded a fine opportunity for trying the effect of oxygene air in the cure. But, as I was the firſt who ventured to publiſh the Theory, there was a danger of being accuſed of a predilection for ſpeculative opinions, had I applied to Government for an apparatus.

is not at preſent an officer in the Fleet, that, in doing juſtice to either his people or his country, would prefer the cure out of a ſhip. Nay, there is often the moſt urgent neceſſity for keeping them on board till they acquire a certain degree of ſtrength. In the very weak ſtage, a ſcorbutic patient cannot bear the external air, which has been long obſerved, and recently confirmed, by the five men dying in the boat belonging to the Prince of Wales, between the Downs and Deal Hoſpital.

Thoſe who may conſult theſe pages, and are acquainted with the opinions, which I formerly publiſhed, on the Theory and Practice of Sea Scurvy, will ſee, that this immenſe field for obſervation, which the Channel Fleet has afforded, ſeems to ſtrengthen all my old concluſions. Nothing remains for me to retract. The whole has been confirmed by the experience of a great number of ſurgeons, of approved abilities, in the profeſſion. Dr. Beddoes, in his remarks on my work, laid much ſtreſs on the impure air of ſhips in producing Scurvy. If this had ſo much effect, ſurely it would have counteracted the cure, when the ſeamen remained on board: but that has not been obſerved. The ſurgeons generally remarked, a very great difference on the ſecond and third day; and a week was long enough for to com-

pleat

pleat the cure. The diſcipline of the officers in the Fleet, in whatever related to health, has rendered them famous. To have thought of foul air, as a cauſe of the Scurvy, when it appeared in the Royal George and Queen, would have been the laſt reſource of a phyſician, inveſtigating cauſes, who had witneſſed the admirable ſyſtem of duty practiſed by Captains Domet and Bedford.

I ſhall conclude my obſervations on this diſeaſe, by introducing a letter from Mr. Baird, ſurgeon of the Hector. This ſhip left the Channel Fleet in May, when our ſufferings were great.

"Hector, Spithead, Dec. 4th, 1795.

"SIR,

"As I conſider the Navy indebted to your exertions, for the very valuable inſtitutions of lemon juice; I ſhould think I failed in my duty, if I did not communicate to you, the wonderful benefit derived from it in the Hector.

"On my joining this ſhip, in May laſt, I found her under orders for foreign ſervice; our deſtination ſuppoſed to be the Eaſt Indies. Several of our ſhip's company were labouring under Scurvy, in an advanced ſtage, all of whom I ſent to the hoſpital, previous to our ſailing. But, as I had

had great reaſon to ſuppoſe, that the ſcorbutic taint was general, I rather felt diſcouraged at the idea of encountering ſo long a voyage, under ſuch circumſtances. Indeed my fears were ſoon confirmed; for we were but a few days at ſea, when the ſick liſt was conſiderably increaſed with ſcorbutic patients: ſome with their gums highly putrid, legs and thighs much ſwelled, hams contracted, and ſo very ill, as to render them totally unfit for any kind of duty. The ſmall beer not being expended, the inſtructions from the Sick and Wounded Office did not exactly warrant my iſſuing lemon juice and ſugar. But, as it ſeemed the only probable remedy, I ſolicited Captain Montague to loſe no time in giving it to the ſhip's company, in the quantity directed, as a preventive; to be mixed with a proportion of water, as ſherbit; and alſo to allow me to iſſue it, in any quantity I might think proper, in bad caſes.

"I began with giving the lemon juice, in the quantity of an ounce and half daily; and, encouraged by the material change I perceived in about four days, I increaſed it to three or four ounces *per diem*; always taking care to join a ſufficient quantity of ſugar, to prevent it from irritating the bowels: in twelve or fourteen days, the worſt of them were able to return to duty;

every

every ſymptom being then removed, except ſome ſlight degree of ſtiffneſs in the hams, which gradually wore off.

"That the lemon juice was equally ſerviceable as a preventive, as I think evident from the following obſervation; for the firſt month, new patients frequently complained, but after that time, the only ſcorbutics we had, were men preſſed out of merchant ſhips returning from long foreign voyages.

"We ſailed with the outward bound Eaſt India trade on the 24th of May laſt; and returned the 19th of November, with the homeward bound trade; having been as far as 28° and a half ſouth; about three weeks in harbour from the time of ſailing till our return; and part of that time at St. Helena, a place well known for its barrenneſs, and the very little refreſhment which it produces. We have returned to Spithead without loſing a man by Scurvy; nor have we had occaſion to ſend a ſingle man, in that diſeaſe, to the hoſpital.

"When I conſider the alarming progreſs which the Scurvy was making among the Hector's ſhip's company, previous to the adminiſtration of lemon juice as a preventive; the ſudden check that diſeaſe met with afterwards; the powerful effect of the acid in very bad caſes; I think I will

will not be accuſed of preſumption, when I pronounce it, if properly adminiſtered, a moſt *infallible remedy*, both in the cure and prevention of Scurvy.

I am, SIR,

Your moſt obedient,

and humble ſervant,

(Signed) *A. Baird*."

To Dr. TROTTER."

THE MEANS used to eradicate A MALIGNANT FEVER,

Which raged on board His Majesty's Ship BRUNSWICK, at SPITHEAD, in the Spring of the Year 1791:

With some short OBSERVATIONS on the most probable Means of preserving the Health of a Ship's Company.

By SIR ROGER CURTIS*,
Then Captain of the Brunswick.

THE health of the Crews of His Majesty's ships, is a consideration of so important a nature, that whatever may contribute to its preservation, or to the removal of contagion, when it unhappily exists among them, are circumstances which merit the serious attention of every officer. Those who are conversant in our maritime history, must have regarded, with horror, the dreadful havock which disease, for a long continued series of years, made amongst the seamen of this country.—They will have observed, that disease carried off an hundred times more than fell by the hands of the enemy. During those unhappy periods,

* Captain of the Fleet to Earl HOWE:

" To Souls like these, in mutual friendship join'd,
" Heaven dares intrust the cause of humankind."

Addison, on Marlborough and Prince Eugene.

periods, it is true, that medical ſkill had not reached the degree of perfection it now poſſeſſes; but the chief cauſe of the dreadful calamities which befel our Fleets, was the want of that order, cleanlineſs, and internal œconomy, which is now more generally obſerved. It is now proved, that a due attention to theſe circumſtances operates moſt powerfully, in all ſituations, towards the preſervation of health. But, notwithſtanding the ſtricteſt adherence to the wiſeſt precautions, diſeaſe but too often finds its way amongſt us. Fevers, of the moſt infectious and dangerous kind, frequently rage in our ſhips. They are ſometimes generated there by a want of cleanlineſs in the ſhips, and in the people; but they are more generally propagated by the introduction of infected perſons.

When contagion has once taken root in a ſhip, the different parts of it, as well as the perſons and the cloaths of the crew, become highly infected, and it cannot be removed without great labour and perſeverance. Under circumſtances, when neither the ſtores nor the crew can be removed from the ſhip, the difficulty of eradicating infection is greatly augmented; but even thus ſituated, it is *poſſible* to be effected. It requires, however, great and unremitting pains. The ſlight and ordinary modes of fumigation, by correcting the air, are ſerviceable in the *prevention* of ſickneſs; but when contagion

contagion is eſtabliſhed, a more powerful appli-cation of it, and other means muſt be adopted.

The Brunſwick was afflicted with a putrid and highly infectious fever, when lying at Spithead in the ſpring of 1791, which raged ſo violently, that frequently ten or fifteen men would fall down in it in a day, and more than one hundred and fifty were in the hoſpital at Haſlar at one time. Its progreſs in the ſhip was however at laſt arreſted, and [illegible] made uſe of are hereafter related, th[illegible] may be followed by others under ſimilar circumſtances, if they are deemed to be deſerving of notice.

As ſeamen have great reluctance in complaining when they find themſelves but ſlightly indiſ-poſed, and it being very material that infected perſons ſhould, as ſpeedily as poſſible, be removed from the body of the ſhip's company, to impede further communication of the diſeaſe, as well as to facilitate the cure of thoſe attacked, by an early application of medicine, great attention was ob-ſerved by all the officers, in immediately reporting every man who appeared to have the ſmalleſt in-diſpoſition, whether it was diſcovered by day or by night. The whole ſpace under the forecaſtle on the larboard ſide, including the round-houſe, was appropriated to the ſick, and the obtruſion of any other perſon abſolutely prevented. To this place every perſon was removed the moment it was diſ-

 covered

covered that the diſeaſe had ſeized him, and the primary remedies towards cure immediately applied, from whence, as ſpeedily as could be, he was carried to the hoſpital, care being had that every thing belonging to him was ſent with him.

Moiſture operating more powerfully than any other cauſe in the production of diſeaſe, as well as in the propagation of it, our firſt care was the endeavour to remove all humidity, and foulneſs of air.

The well was baled out, ſcraped and ſwabbed till entirely dry, and then a large fire was kept burning in it for ſeveral hours every day, ſo that the ſmalleſt dampneſs therein was not ſuffered to remain.

The hold had the upper tier of caſks removed from it, and ſent on ſhore. Three fires were then kindled in it, and kept burning for many hours every day, confining the ſmoke as much as poſſible, and occaſionally ſhifting the fires from place to place; and in the fuel made uſe of, as many empty tar barrels were conſumed as could be collected for the purpoſe; at other times wood, and occaſionally coals, intermixed with ſhakings of tarred ropes. Every precaution being conſtantly taken to prevent accident. When the fires were extinguiſhed, the gratings of the hold were removed, and the windſails let down.

The

The horlop was conſtantly kept as clear as poſſible of every thing that prevented a free circulation of air, and a fire placed ſometimes in one part of it, and ſometimes in another.

The cockpit, ſteward room, and bread room were treated in the ſame manner.

The doors of all the ſtore rooms were occaſionally thrown open, and the ventilators worked unremittingly day and night.

The fires on each ſide the 'tween decks were kept [illegible] almoſt the whole day, and theſe were from time to time ſhifted to every part of it. The manger was cleared of all manner of lumber, and a fire occaſionally placed therein. The deck was ſeldom waſhed, and never but when the weather was ſuch, that the people could remain upon the upper deck, until it was perfectly dried by the fires, and the natural current of the air; nor was any perſon whatever permitted to go below, under any manner of pretence, until the general permiſſion for it was given. When the deck was not waſhed, it was kept perfectly clean by other means; and ſlops about the decks, and every ſort of dampneſs was ſpecially guarded againſt. The ſides, beams, carlings, the deck overhead, and every part of the 'tween decks were white-waſhed, twice or thrice, during the courſe of the diſorder.

Fumigation in the hold was thus conducted:—four half tubs with ſtands in them were diſpoſed therein. In each of the tubs was placed an iron pot, into which was put about two pounds of brimſtone tied up in a piece of canvas. The gratings were laid, and ſo cloſely covered with tarpaulins, old hammocks, ſwabs, &c. that none of the ſmoke might eſcape. When every thing was prepared, a red hot loggerhead, or iron fid, was put into each of the iron pots, which ſet fire to the brimſtone; and the men performing this ſervice, immediately leaving the hold by a grating of the main hatchway being kept open for the purpoſe, the hatches were entirely cloſed.

It was the cuſtom, to fumigate the hold, horlop, and 'tween decks at the ſame time; but as we could not be furniſhed with a ſufficient quantity of *brimſtone*, to make uſe of it in all the different parts of the ſhip at the ſame period; it was uſual, therefore, to uſe the *brimſtone* in the hold, horlop and 'tween decks in rotation; and where the brimſtone was not applied, there were ſubſtituted what are called devils, made of powder wetted with vinegar. In thoſe parts of the 'tween decks leaſt acceſſible to air, and where conſequently there is a greater degree of contagion, the flaſhing of powder from piſtols is attended with very good effect; for the ſhock of the exploſion aſſiſts very

powerfully

powerfully in difperfing the infectious matter attached to the timber of the fhip.

During the fumigation, the men's hammocks were all hung up in their places, with their mattraffes and blankets fpread over them, and all their fpare apparel was fo difpofed of upon the guns, &c. as to receive the full effect of the fumigation; and the cloaths, which the men wore upon deck during the time of one fumigation, were changed upon the next, and placed below, that all their things might receive equal purification.

The gratings on the main deck were laid and covered, and with fuch care, that no fmoke could efcape, and the pots were carefully barred in. The brimftone in tubs, or the devils, with other fafe precautions, were difperfed about the decks, and then lighted; the perfons who did it efcaping upon deck, and clofing the hatchway after them, the operation was completed.

The fmalleft crevices of the fhip were pervaded by the fmoke and effluvia of the brimftone, and affected every part of her in a powerful and aftonifhing manner.

Three hours were generally fuffered to elapfe before the gratings were uncovered, and the ports opened; and a free circulation of the air for a very confiderable time was afterwards neceffary, before a perfon could remain below without inconvenience. The whole of the hull of the fhip,

 and

and every thing therein, animate and inanimate, was ſtrongly impregnated with the fumes of brimſtone, and to ſuch a degree, that it was perceptible when to leeward of the ſhip, at a conſiderable diſtance from her.

In damp weather theſe fumigations were practiſed every day, and never leſs than three times a week. The fires were continued daily

The ſick birth was attended to wi[illegible] ſolicitude, to impede and eradicate infection, as has been deſcribed in reſpect to the other parts of the ſhip.

Nor were the perſons and apparel of the men diſregarded. Every man in the ſhip was waſhed from head to foot with warm water and ſoap, and more than even our uſual pains were taken that they ſhould be cleanly in all reſpects. If any old and uſeleſs cloaths were found, they were thrown overboard. Such ſerviceable apparel as was diſcovered the leaſt filthy, was waſhed and fumigated, and the men were forbid to wear woollen trowſers. On fine days, the whole of their bedding was hung upon lines between all the maſts, and on the rigging, and expoſed thus to a free ventilation for many hours, and their cloaths of every kind were treated in the ſame manner.

The recovered men, returned from the hoſpital, were treated upon their coming back to the ſhip with great precaution. Having received at the

hoſpital

hoſpital notice of their recovery, and the intention of their return, a careful petty officer was ſent thither to ſee all their cloaths and bedding well aired, by being ſpread abroad for two days, and well beat and cleaned, previous to their coming to the ſhip. Upon their arrival on board, every man was waſhed in warm water, and with ſoap, and an entire change of cloaths was then put upon him; [illegible] of his apparel and his bedding were in[illegible] umigated with brimſtone, which was performed by ſuſpending it over the fumes iſſuing from an iron pot, placed in a half tub, in a convenient place under the forecaſtle.

Such were the means made uſe of with punctual and unceaſing perſeverance. They certainly were attended with no little labour, but the fever with which we were afflicted having been entirely ſubdued, the gratification, ariſing from the reflection that our endeavours were crowned with ſucceſs, was the moſt ample recompence for all our trouble.

THOUGHTS

ON THE MOST PROBABLE MEANS OF

Preſerving the HEALTH of SEAMEN.

A CHAIN of calamitous Circumſtances but too frequently occurs, to endanger the Health of our Seamen; and on ſuch occaſions the utmoſt endeavours of the Officer to prevent it altogether, proves frequently ineffectual. But except in thoſe extraordinary caſes, prevention is more in the power of officers than ſeems generally to be imagined. It would ſave the lives of many men, and be otherwiſe productive of very beneficial effects, if fires were, in the day time, to be placed in the hold and other parts of ſhips, for ſome weeks previous to their being put into commiſſion. And the difficulty and expence attending the meaſure are really contemptible, to the good that would reſult from it.

Great care ſhould be taken, that the ballaſt received on board ſhould be clean, freſh, and as good

good in its kind as can be procured. The Thames ballaſt is very unfavourable to health; for beſides being naturally foul, it is full of freſh water animalcula, which being deſtroyed in the ſhip, ſtink, and become very offenſive.

It is ſometimes the practice to line the gratings of the horlop with thin deal, to prevent any filth from falling into the hold: but it is a method highly pernicious; for the precluſion of air, which is thereby occaſioned, fills the hold with putreſcency, induces dreadful diſeaſe amongſt the people, and deſtroys the ſhip. Every method therefore ſhould be taken to cauſe a circulation of freſh air in the hold, by the uſe of windſails, and occaſionally by fire.

The well ſhould be kept as dry as poſſible; and if the tightneſs of the ſhip will allow it, it ſhould be cleanly ſwabbed out every day. If it cannot be kept properly dry, water ſhould be let into it every evening, and pumped out the following morning, and in the day-time fires frequently made in it. Fatal accidents frequently happen from the bad ſtate of the well, in caſes where men are obliged to go into it upon duty; but where even theſe do not occur, very great is the injury done to the health of a ſhip's company, by want of due attention to the ſtate of the well. It is a very proper precaution to try a lighted candle in the well before any perſon be per-

mitted

mitted to go into it, if there is the leaſt ſuſpicion of the air therein being foul.

Upon the firſt outfit of a ſhip, the men received on board her, ſhould be examined with the moſt ſcrupulous attention, that diſordered and infectious, or foul ulcerous perſons may not be admitted. Such of their cloaths as are foul, and of little worth, ſhould be deſtroyed, and the reſidue waſhed and fumigated; and their perſons ſhould alſo be thoroughly cleanſed, by cauſing them to be waſhed with ſoap and water from head to foot. Their hair, if neglected and filthy, ſhould be cut ſhort, and if neceſſary their heads ſhould be ſhaved. Without theſe precautions, the ſeeds of future malady may be diſſeminated in the ſhip, and diſorder may afterwards make dreadful havock amongſt the crew. And at no time ſhould any ſtrange men be received on board, without ſimilar attention.

Order and cleanlineſs are the officers' moſt powerful reſources for the preſervation of health; but there are a thouſand leſſer circumſtances to be attended to, which materially contribute to ſo deſirable an object. The nature of cleanlineſs too is often miſunderſtood; and I know of nothing of that kind which is ſo much miſtaken, as the too frequent and indiſcreet drenching the decks, and more eſpecially thoſe where the people ſleep, with water, and particularly in cold latitudes during the

the winter. By this means I have known dreadful ſickneſs *introduced*,—and I have known it *removed* by a contrary practice. It would be deemed extravagant to advance an opinion, that the decks ſhould *never* be waſhed; but I feel no reluctance in making a direct aſſertion, that it were far better that they ſhould not be *waſhed at all*, than with that want of diſcretion and precaution, which ſo generally prevails. It is an error that has cauſed the deaths of thouſands! Certain it is, that the decks cannot be kept too clean; but they ſhould be made ſo by other means than waſhing, except the weather be ſuch as will ſoon cauſe them to dry, or that you have the means of drying them by fires. This obſervation applies to every deck in a ſhip; but in a particular manner, to thoſe where the people chiefly reſide, or from whence the humidity particularly affects them: nor ſhould they ever be permitted to go below after a waſhing, until the decks are perfectly dry; for it is a fact univerſally admitted, that moiſture is the chief prediſpoſing cauſe to almoſt every malady with which a ſeaman is afflicted. It particularly induces ſcurvy and putrid fevers. Seamen are naturally indolent and filthy, and are merely infants as to diſcretion, in every thing that regards their health. They will aſſiſt in waſhing decks, and ſit the whole day afterwards, though wet thereby, half way up the legs, without ſhifting themſelves,

themſelves, to the great injury of their health. They ſhould therefore be compelled to put off their ſhoes and ſtockings, and roll up their trowſers on thoſe occaſions, which will not only cauſe their feet to be dry and comfortable the reſt of the day, but neceſſarily cauſe a degree of cleanlineſs which otherwiſe would be diſregarded. The practice which has lately been adopted of having ſtoves with fires placed occaſionally in thoſe parts of the ſhip where the men reſide, and in others ſubject to humidity, is of the utmoſt importance to the health of the people, and ſhould never be omitted in damp weather.

Great pains ſhould be conſtantly taken, that the men are cleanly in their perſons, and that they are furniſhed with all neceſſary cloathing. And the method now ſo generally adopted of appropriating the ſhip's company to the care and ſuperintendance of the ſeveral officers, renders the accompliſhment of theſe neceſſary and important requiſites extremely eaſy.—Seamen have a cuſtom of dreſſing themſelves to undergo inſpection at ſtated periods, while at other times they are covered with rags and naſtineſs. They ſhould be compelled to keep their trowſers and other cloaths clean, how much ſoever they may be worn; and that they may have no excuſe for raggedneſs, there ſhould be a taylor to every diviſion, whoſe ſole employment, under the direction of the officer,

ſhould be in keeping in order the cloaths of the men belonging to it. Whenever any payment is made on board, the officers of diviſions ſhould take care that their men do lay in a ſufficient ſtock of cloaths, with ſoap, and ſuch other articles as may be neceſſary for them, before they are allowed to ſquander any of their money in diſſipation. And where theſe payments are made upon the eve of the ſhip's going to ſea, the men ſhould be in[illegible]ced to lay in a ſtock of onions, potatoes, and even tea and ſugar. It is inconceivable, to thoſe who have not ſeen the good effects of it, how much ſuch attentions preſerve the health of a ſhip's company.

The bedding of ſeamen is in general too little attended to; for as they ſleep without ſheeting, their blankets muſt unavoidably become offenſive, and injurious to their health. Their bedding ſhould therefore be frequently well aired, by being hung upon lines fixed for the purpoſe; and their blankets ſhould be waſhed as occaſion may require.

Their hammocks ſhould be kept clean; but whenever they are waſhed, they never ſhould be permitted to ſleep in them until they are perfectly dry; for they had better ſpread their bedding on the deck, than lie in a damp hammock. Whenever it can be done, there ſhould be a change of hammocks in uſe for the ſhip's company;

pany; and this may be managed without the leaſt additional expence to government. But what are expences, compared to the health and comfort of the people! The hammocks ſhould be got up whenever it is practicable, to admit of a free circulation of air below, and this may be generally done, owing to the excellent hammock coverings which are now allowed by government. But when the weather is thoroughly dry, the hammocks ſhould be frequently uncovered in the nettings, in order that they may be benefited by the free acceſs of the air. The cleanlineſs of the people's bodies ſhould be particularly attended to, as well as their cloaths and bedding. They ſhould therefore be compelled to waſh themſelves in tubs allotted for that purpoſe, which will not only contribute to prevent illneſs, but will alſo act as a bracer, and render them leſs liable to catch cold.

Having but little judgment of what is fitting for them in any ſituation, they ſhould not be permitted to go too thinly clad in ſevere weather, nor too warmly when it is hot. They are too indolent to ſuit their dreſs to circumſtances, unleſs they are forced to do it, nor is any thing more common than to ſee ſome of them with a pair of thin linen trowſers on in the ſeverity of winter, and a pair of greazy woollen ones in the hotteſt weather.

When

When their watches expire in rainy weather, they ſhould be obliged to take off their wet ſhirts before they get into their hammocks, which, from lazineſs as well as fatigue, they will not do, but by compulſion. Nothing can be more pernicious than going to ſleep wrapped up in wet linen, and it cauſes alſo their bedding to be damp and unwholeſome for ſome time afterwards.

They ſh[illegible]d never be allowed to ſleep upon deck dur[illegible] watches, a cuſtom too prevalent, but which is always greatly injurious to the health of the people, and more particularly ſo in warm climates, where the dews are profuſe, than even in colder latitudes.

Many officers are of opinion, that it is adviſable to put the men to three watches in preference of two, when it can be done, from a ſuppoſition that the greater degree of reſt thereby given them, it muſt be conducive to their health; and this would certainly be the caſe, were they to ſleep in a pure air. But as the places where they reſt are particularly cloſe and confined, during the night eſpecially, and the air rendered foul by a number of people crouded together, there are thoſe who think it better for them to have ſhorter portions of reſt, by being at two watches, than to continue for eight hours together ſweltering amidſt an highly corrupted air. And great care

ſhould

ſhould always be had, that the people ſhould be ſo birthed, that the portion of the crew off of duty ſhould be diſpoſed generally over the ſhip, and not arranged together in a particular part.

Nothing is more commendable, or has a better effect on the people, than parade, order, and regularity in a ſhip of war; but theſe things ſhould always be ſubſervient to the health of the men. In line of battle ſhips, the ports being up and the guns run out, has a fine appearance; but, in this caſe, the health of the crew ſhould be conſulted; for in cold damp weather, and particularly when the ſhip is broadſide to the wind, the expoſing of the men to a current of air on ſuch occaſions, and when too they are in an inactive ſtate, is extremely detrimental to their health, and brings on a train of diſmal diſorders. At theſe times the weather ports ſhould be ſhut. A frame to fit every port, with double bunting ſtiched to it, is an excellent method to correct the evil conſequences of too great a current of air paſſing through the ſhip at improper ſeaſons. It prevents the ill effects of too much air, but admits enough for ſufficient ventilation.

It has been obſerved, that the men belonging to the boats are more frequently diſeaſed than any other equal proportion of the ſhip's company. The reaſons are obvious: they are more expoſed to the weather. They frequently get wet on

going

going on ſhore, or become ſo there; and in that condition they often remain many hours, waiting upon the beach for ſome giddy and unthinking officer, who, amidſt his own enjoyments, thinks too little on the ſufferings of the boat's crew. Upon the return to the ſhip, inſtead of care being taken that they ſhift themſelves, and are made comfortable, they paſs unnoticed, and are ſuffered to continue in that condition until their cloaths dry upon their bodies.

The boat's crews of a ſhip are generally ragged as well as ſickly. They too often ſell their cloaths to buy *liquor*, but too often alſo they part with them to buy food, on account of their being unneceſſarily kept on ſhore, to the loſs of their regular meals with the reſt of the ſhip's company. It may with truth be ſaid, that the inattention to the boat's crews of his Majeſty's ſhips, is amongſt the principal irregularities in the navy that require correction; for it deſtroys their health, and is a great cauſe of deſertion.

Amongſt the various omiſſions which contribute to the injury of the health of the crews of his Majeſty's ſhips, nothing ſeems more extraordinary than the general neglect there is of working the fixed ventilators. Theſe ſhould never ſtand ſtill for a moment. A boy is capable of working them, and it may alſo be made a little extra duty for ſuch as may be guilty of very ſlight offences.

 To

To judge of the utility of them, one has no more to do, than to viſit any of the encloſed parts of the ſhip, with which they have connection, where they have not lately been uſed; ſet the ventilators a going for a few hours, and viſit the place again, and the difference of the ſtate of the air will be found as obvious to the ſenſes, as the diſtinction between extreme heat and extreme cold. The ventilator in the foremoſt [illegible] of the ſhip ſhould be particularly atten[illegible]. The air in the ſtore-rooms there ſituated, eſpecially the gunner's, becomes ſo foul, as frequently to be ſcarcely reſpirable, and every thing in them decaying or rotten. The powder too is greatly injured by the humidity and foulneſs of the air, and cauſes the manufacturer to be blamed for its bad quality, where the diminution of its ſtrength has ariſen from the want of due attention to it in the magazine, where ſeldom any pains are taken to correct the air, and where ſometimes the powder remains during a whole year, without the barrels containing it being changed in their poſition. The ſeveral materials of which powder is compoſed have, and more eſpecially in damp ſituations, a natural tendency to ſeparate from each other. Where, therefore, the barrels remain a long time in one poſition, the ſaltpetre deſcends towards the bottom, the due proportion of parts is deſtroyed, and the powder is good for nothing.

I am, therefore, perſuaded that the clamour againſt the powder, with which his Majeſty's ſhips have been furniſhed, has not always been well founded, and that the bad quality perceived in it has generally ariſen from a want of due care in its preſervation. I have ſeen a very great number of trials made of the ſtrength of various ſorts of powder, made in different nations, and the reſult of theſe trials [illegible] unequivocal deciſion, that the Britiſh powder w[illegible] fully as good, if not in general the beſt, made in Europe. It is clear, therefore, that the barrels containing powder ſhould be turned at leaſt every two or three months, and particularly when in ſo cloſe and damp a place as the magazine of a ſhip of war.

The fore maſts of ſhips are found more generally decayed than either of the others, and this is, undoubtedly, occaſioned by the foul and humid air, with which the commonly unſound part is almoſt always ſurrounded. Motives of ſafety will, perhaps, continue to prevent theſe evils from being perfectly removed; but they may certainly be much remedied. I have often thought, that the outward doors of the fore ſtore-rooms, might have a ſcuttle in them, covered with copper, punched full of holes, which would admit a conſiderable portion of freſh air, without the leaſt danger of accident. And, as the ſtate of the weather, and other circumſtances may ad-

 mit,

mit, the doors of the ftore-rooms fhould be thrown open for a confiderable length of time during the day; and to prevent accident, an officer fhould conftantly ftand before them until they are again fhut. Such ftores, as may with safety be removed, fhould be occafionally got upon deck to be aired, which will greatly tend to their prefervation, as well as give the more free admiffion of frefh air into the ftore-rooms. Thefe remarks are, indeed, fomething digreffive f[illegible]n the profeffed plan of this little work[illegible] hoped they will not be thought fo much fo, as to be deemed entirely mifplaced.

The windfails, at every hatchway, fhould be conftantly ufed, when the ftate of the weather will admit of it, and they fhould reach below the horlop deck; for as the hold is unavoidably fubject to confined air, in a confiderable degree, every poffible means fhould be taken to introduce frefh air into it; and it is too little confidered, how many caufes of difeafe originate in a want of due attention to the hold.

As a preventive againft ficknefs, as well as when contagion rages, the white-wafhing the interior parts of the fhip, twice or thrice a year, would, by removing noxious effluvia, greatly contribute to the health of the people.

It is much to the credit of government, that the feveral articles of diet, provided for the navy,

are

are generally of the beſt qualities: but notwithſtanding this generous care of its ſervants, it cannot be denied, that owing to the nature of ſome of the articles allowed, and the unſuitable proportions of others, there is abundant room for amendment in the mode of victualling the navy; and it ſhould ſeem, that improvements therein may eaſily be made, which, without additional expence to the ſtate, would greatly conduce to the [illegible] of the ſeamen. Deviations from the [illegible] victualling were adopted, in va- [illegible] inſtances, during the laſt war; and the good effects of it are too well known and remembered, to be here particularized.

The articles of cloathing ſupplied, deſerve alſo new regulations; for the ſame proportion of the ſeveral articles are iſſued to the ſhips, whether deſtined to a frozen, or to a burning climate.

The want of ſoap, abroad particularly, is very generally the cauſe of great filthineſs in the perſons and the apparel of ſeamen. It would greatly tend to remove theſe evils, and conſequently contribute to the preſervation of their health, if this article were to be ſupplied by government, and iſſued by the purſer to the people, in ſuch quantity per month as may be deemed neceſſary.

At ſome fit period, it is probable, theſe important ſubjects will meet with the conſideration of government.

Touching the articles now ſupplied to ſhips, which relate to proviſions, there appears to be nothing ſo injudiciouſly uſed as vinegar. This is a very uſeful article wiſely diſtributed; but the general practice, at preſent, is to iſſue it to the ſhip's company, in conſiderable portions to every meſs, once in two or three months; but the men having no proper means of keeping it, it is loſt by accident, or properly conſumed in the courſe of a day or two, and they have no more unt[illegible] next ſerving. I have ſeen the follow[illegible] plying vinegar made uſe of w[illegible] effects: a ſmall caſk of it has been ſlung up under the half deck, and, to prevent waſte, in care of a centinel. The men had acceſs to it whenever they pleaſed, and, though they had thus a conſtant uſe of it, there was never want of vinegar in the ſhip.

Whenever ſhips touch at places where lemons or limes are to be obtained, a conſiderable quantity ſhould be procured for the uſe of the ſhip's company; and, to prevent the loſs that may be ſuſtained by their rotting, it is adviſable to expreſs their juices. The juice ſhould remain for twenty-four hours in a tub; the ſcum being then carefully removed, it may be put into a clean caſk, and with the proportion of two or three gallons of ſpirits to a hogſhead of juice, it will be preſerved for a very conſiderable length of time.

Thus

Thus furniſhed, a ſhip may bid defiance to the ſcurvy; and the application of it will be found not a little uſeful as a remedy for other afflictions.

Reſpecting water, ſome very valuable obſervations are to be found in Dr. Blane's publication relative to the Diſeaſes of Seamen, to which the reader is referred. But it may not be amiſs to ſay, that no ſhip ſhould go to ſea without one of OSBRIDGE's machines for ſweetening it, which is found by experience, to be the moſt ſimple and uſual [illegible] mode of purifying water that has hi-rious been invented: nor ſhould a drop of water be uſed by the men, while a ſhip is at ſea, without having been previouſly purified by it.

Ships are frequently obliged to have communication with the ſhore, where the country is covered with woods and marſhes, and where it muſt be, unavoidably, unhealthy. In theſe ſituations, no man ſhould, on any account, be ſuffered to paſs the night on ſhore; nor ſhould they leave the ſhip for the purpoſe of wooding or watering too early in the morning, nor ever before they have breakfaſted. And it would greatly preſerve their health, if before they went upon theſe duties, they took each a ſmall quantity of ſpirit in which bark had been infuſed. They ſhould alſo always be brought off to the ſhip before ſun-ſet. Where the crews of ſhips *muſt* of neceſſity be employed in wooding and watering, the rules and precau-

tions above recited will be found highly beneficial; but in unhealthy climates, theſe duties ſhould be performed by the natives hired for the purpoſe, and particularly on the firſt arrival of the ſhips.

I beg leave to relate a fact, in confirmation of the utility of the above precautions. In a voyage down the coaſt of Guinea, in the Aſſiſtance, in the year 1762, we had ſcarcely a man indiſpoſed. We wooded and watered at the Iſland of St. Thomas; and, with a view to expedit[illegible] was erected on ſhore, in whic[illegible] ployed on theſe ſervices were lodged durin[illegible] night. On the Middle Paſſage, every man that ſlept on ſhore died; and the reſt of the ſhip's company remained remarkably healthy!

To the humane and learned Dr. Lind we were firſt indebted for a moſt valuable work, written profeſſedly with a view to preſerve the health of our ſeamen; and Dr. Blane, the preſent Phyſician of the Fleet, has very ſucceſsfully directed his eminent talents to the ſame important end.

As an individual ſincerely attached to my profeſſion, and ardently ſolicitous to adopt every rule of conduct, by which the more laborious part of it may be rendered healthy and comfortable, I beg leave thus to offer them the tribute of my unfeigned gratitude. The ſame ſentiments of acknowledgment are due to them from every well-wiſher to this country. They have not, indeed,

deed, directed fleets on the day of conquest, but they have eminently contributed to preserve the health of those by whom victories are obtained. And I scruple not to say, that their country has been more benefited by their labours, than by the greatest victory that was ever atchieved! It has been wisely said, that the fatherly care of a commander is the *Seaman's best Physician.* To know, therefore how most usefully to direct his bene-[illegible] heal[illegible] humane disposition, the works of these usual [illegible] should occupy the first place in [illegible]rious [illegible]rary of every Captain of a man of war; for a careful perusal of them, will teach him the way to render healthy, comfortable, and happy, the men over whom he is appointed to command, who are entitled to kindness in return for obedience, and who look up to him as their guardian and protector.

APPENDIX.

THE TREATMENT OF RECENT VENEREAL INFECTION,

ADDRESSED TO OFFICERS.

IT is not the intention of the present address, to make every man his own physician: that, the author well knows, is equally hazardous and impracticable. This is a matter, however, from its peculiar nature, on which young men sometimes read books; and Officers of our Navy do it as well as others. But the reading of books on the Venereal Disease, as I have frequently seen, has not been from curiosity alone; there has been a desire to think and act for themselves; and we often hear people who have not made physic their study, giving their directions on the method of prevention and cure, in a tone of confidence and authority, that bespoke a long acquaintance with the subject. To persons of this description, a little seasonable advice may be useful. I am the

the more inclined to do this, as many officers of the ſervice, have been accuſtomed to treat themſelves, in the early ſtage of the complaint, according to my directions; by which means they believed that their conſtitutions were ſaved from the ravages of a dangerous diſeaſe, by a very ſhort confinement and pain.—If there was any more urgent motive for my treating the ſubject in this manner, it would be gratitude for a thouſand tokens of friendſhip, that no diſtance of time or pla[illegible]te from my memory.

It [illegible] my lot, to ſee the Venereal Diſeaſe in as great a variety of caſes, and among perſons of very different diſcriptions, as has uſually come to the ſhare of moſt phyſicians and ſurgeons. I alſo think, as a navy ſurgeon, I have had ſome advantages over gentlemen who practiſe on ſhore, and who have not their patients ſo much under their eye, as we have in ſhips.

It would be well if a ſafe method of treating the Recent Venereal Infection, could even be extended to the ſeamen: for although the abolition of the fine, for the cure, has done much in making them diſcover their complaints early, yet we have known a degree of modeſty in ſome of them, independent of other conſiderations, prevent them from applying to the ſurgeon, leſt their names ſhould be handed in the ſick liſt to the Captain. We are now told that the ſale of mercurial preparations

parations in the apothecaries ſhops in Portſmouth, and elſewhere, has diminiſhed in an uncommon degree, ſince government remunerated the ſurgeon for the cure; and may we not ſuppoſe that many valuable lives will be ſaved in conſequence. I have frequently known ſeamen enter on board a man of war, for no other reaſon but the cure of the Venereal Diſeaſe, which they were not able to pay for, on ſhore; and if that was the [illegible]aſe formerly, how much more encouragem[illegible] does it hold out now, when they are [illegible]ing. We may therefore conſider it, [illegible]e of the moſt humane and juſt alterations which could be deviſed, but as one of the moſt popular meaſures which the Admiralty could adopt. The herd of quacks and itinerant practitioners who frequented the ſea-ports, and preyed on the credulity of our men, have alſo taken their departure from the failure of buſineſs. It was a grievous reflection to think that a ſailor often paid ſo high as five guineas for medicines, while the diſeaſe, in the mean time, was gaining ground, and for which he was obliged at laſt to go to an hoſpital. But there is another advantage, no leſs humane, derived from the change that has lately taken place: the poor women who aſſociate with our ſeamen, who were often known to periſh in the loweſt ſink of human miſery, from an incurable diſtemper, are ſaid, at preſent, to be little

afflicted

afflicted with the complaint, compared with former times.

The hiftory of this fingular difeafe, has exercifed the pens of many ingenious phyficians; yet it has not been fatisfactorily proved, that the infection was imported by the followers of Columbus, in his firft voyage to America: on the contrary, its tran[illegible]-atlantic origin is much doubted, and the idea th[illegible]t was known before the fiege of Naples, begins [illegible] to meet with general fupport.

W[illegible] phyficians who diftinguifh two difeafes, [illegible]ich were formerly confidered as one. This opinion was firft held by Dr. Duncan, a profeffor of the inftitutes of medicine, in the College of Edinburgh, publifhed in the Report of his clinical practice, in the Public Difpenfary of that city. It has fince that time received additional fupport from Mr. Bell's Treatife on the Venereal Difeafe; but who takes no notice of the original author, or the arguments he had ufed in favour of his doctrine. I fhall therefore confider Gonorrhœa, with a train of fymptoms peculiar to itfelf, as a primary difeafe, and incapable of producing the Confirmed Pox: the Lues, I alfo think, never produces Gonorrhœa. Long and attentive obfervation enables me to draw thefe conclufions; but it would be foreign from the prefent purpofe, to ftate the facts from my own experience, or that of others.—I fhall firft treat of Gonorrhœa.

This

This name was given to the diſeaſe in the rude ages of anatomy, when the nature of the diſcharge, and the parts where it aroſe were not accurately known. But it is ſufficiently aſcertained at this day, that the running from the urethra, is only an increaſe of the mucus of the parts, which becomes altered in quantity, colour, and conſiſtence, during the inflammation of the membrane and glands which ſecrete it. We are therefore fully aſſured by diſſections, the beſt authority, that the diſcharge is ſuch as we have mentioned, [illegible] does it come from excoriations or ulcers, [illegible] might alſo be ſuſpected, were we not convinced of the contrary.

This complaint is one of thoſe, which have given full ſcope to the ingenuity of impoſture and empiriciſm, to profit by the afflictions of mankind; hence hand-bills and news-papers teem with the accounts of wonderful cures, and *certain* prevention againſt the malady. We are not ſurpriſed to ſee the credulous and ignorant, become the dupes of theſe tricks and deceptions; but it muſt afford matter of aſtoniſhment, if not regret to ſome, that there is a body of phyſicians, veſted with the excluſive priviledge of preventing theſe depredations on the health of his Majeſty's ſubjects, who ſeem to have forgot that a late order in council, renewed the delegated power; to be ſeen in the laſt editions of the Pharmacopœia Londinenſis. If any thing can prevent venereal

nereal virus from taking effect, it muft be immediate ablution of the parts; I apprehend nothing furpaffes the finer foaps, and common water, which ought to be continued for fome time, and repeated morning and evening.

After impure connection, when infection has been received, it commonly appears in the following manner: a kind of tickling is felt about the end of the urethra, which at firft may be called, rather a pleafurable fenfation, than one of pain; but it foon ce[illegible] uneafinefs, particularly after the laft drops of urine are made; with this appears an increafe of mucus, which is of a whiter colour, and thicker than natural; the mouth of the urethra is of a redder complexion, is alfo wider, and fomewhat fwelled in the edges. A vermicular motion, at this time, is often perceived in the tefticles, and accompanied with defire.

There is no fixing the precife period for the commencement of thefe fymptoms; nor does their early or later appearance always prefage a milder or more violent difeafe. They fometimes fhow themfelves in a few hours; moft generally in two or three days; and we have repeatedly known them fo late as ten weeks.

Thefe fymptoms of venereal infection are occafioned by fome particles of the virus having come in contact with the lips of the urethra, during their ftate of diftenfion, and when they were

rendered

rendered exquisitely sensible by the influx of blood. When the penis is in its collapsed state, it is probable that so small a quantity would be unable to produce the effect: the poison first affects those very nicely sensitive nerves, and the inflammation of the inner membrane, and other parts, is from sympathy. There is no such thing as a fermentation taking place from the venereal matter, by which it assimilates every thing to its nature; its first action is on the nerves; and which, like a species of generation, communicates a peculiar power to the glands, by which means they generate, and pour out a matter exactly resembling the one which gave the original impulse; and like it, this matter is endowed with the property of spreading the disease. Now it requires some space of time for the poison to be in contact with the mouth of the sensible urethra, before it is sufficiently impressed to receive the disease: if, therefore, the matter which conveys the infection should be washed off, by soap and water, before the impression is finished, you will escape the complaint; and this is the whole secret of prevention.

The whole train of symptoms that follow in Gonorrhœa, are either directly from the inflammation of the parts, or its effects. The inner membrane of the urethra is more or less inflamed: certain little glands situated there, which pour out a mucus

a mucus for defending it againſt the acrimony of the urine, partake alſo of the inflammation, and this ſo changes their diſpoſition, that their ſecretion becomes the vehicle of the infection.

Now ſuch is the effect of inflammation here, as in all other parts, that the ſenſibility of the membrane of the urethra becomes greater than uſual. This gives what is called the *heat of urine* ; which is [illegible] when the urine paſſes over the tender ſurface. The pain will alſo be greater when the urine is ſmall in qu[illegible]y, or when long retained in the bladder, [illegible] its more watery parts have been abſorbed, and therefore, the remainder is loaded with certain ſalts, which render it more acrid. The pain in making water is alſo greateſt, when the laſt drops come away ; this proceeds from a greater contraction in the fibres being wanted to expel a few drops, than what is required for a full ſtream.

The heat and redneſs of the neighbouring parts, with ſome ſwelling, are owing to the greater influx of blood, becauſe the pulſations of the arteries are increaſed ; they contract more often, and drive a greater quantity of the vital fluid through their cavities, in a given time ; hence erections in ſome ſtages of the Diſeaſe become ſo frequent and painful.—This is a ſtrong argument for avoiding all laſcivious ideas, as they have the effect of increaſing the flow of blood to parts that

ought to be kept collapsed and cool, which is a most effectual means for subduing the inflammation.

When the train of symptoms which we have described above, make their appearance, they afford an opportunity for cutting the disease short, and preventing much pain, otherwise unavoidable. This may be accomplished by the following means:

If the patient is of a full habit, strong or robust constitution, he must immediate[illegible] submit to the following regimen: He is to avoid [illegible]g, riding, and all kinds of exercise; the parts must be carefully washed every morning and evening in cold water, with castile soap: abstinence from all spiritous and fermented liquors is to be strictly adhered to; and animal food of whatever kind is forbid. Weak broth, small-beer, water-guel, tea or coffee, and bread without butter, milk, sago, light pudding, and such like fare, are to form the diet. A gentle dose of physic will be necessary: boil four drams *avoirdupois* of senna, in a half pint of water, then add an ounce of tamarinds; let them stand a-while, then strain off the decoction, and drink the whole in three hours. If the patient is of a weaker habit of body, there will be little variation needed from a diet of temperance *.

* When the inflammation increases to a great degree in a short space, bleeding is indispensible.

By

By way of medicine, take half a dram of arabic gum, in a half pint of pure water, every hour or two. The intention of this is to dilute the urine: I have told you above, that the urethra, from its inflamed ſtate, was become exquiſitely ſenſible: there are certain ſalts in the urine, which render it more acrid when little drink is taken, and in being voided over the tender and inflamed paſſage, it gives a ſenſe of heat, which is called *the ſcalding of the water*. It ſo happens, when a large quantity of diluting drink, ſuch as gruel or barley [illegible] is taken, that theſe ſalts are diffuſed in a larger proportion of fluid, and thus paſs over the inflamed membrane with leſs pain.

Along with the regimen and diluting drink, the following injections for the urethra, are to be uſed immediately on the appearance of the running. The ſyringe ought to contain three drams or a half ounce, made of pewter, with a conical point, ſo as to fill the mouth of the urethra exactly. This being filled with one of the injections mentioned in the margin, it muſt be gently introduced into the urethra, and while you hold it ſteady at the point, and cloſe the lips upon it with one hand, with the other you throw the injection into the paſſage: the ſyringe is now to be withdrawn, and the fluid to be held in for three or four minutes.

 This

This injection is to be repeated every time you make water, and as ſoon as that is done, before any accumulation of mucus fills the paſſage. By drinking the gum ſolution in due quantity, you will be able to inject ſo often as eight or ten times in the day, for the firſt day or two. The ſlighteſt pain ſhould be perceived in throwing up the injection; and for this reaſon, I have given three of each kind, which differ in the quantity of metallic ſalt to each. The weaker ought to be tried firſt, and the ſtronger ones in [illegible] there is alſo, ſometimes, advantag[illegible] one of ſugar of lead for that of white vitriol, and the contrary *.

I have

* INJECTIONS.

1. Take of ſugar of lead twelve grains, pure ſpring water half a pint; mix them.
2. Take of ſugar of lead ſixteen grains, pure water half a pint; mix them.
3. Take of ſugar of lead twenty four grains, pure water half a pint; mix them.
4. Take of white vitriol twelve grains, pure water half a pint; mix them.
5. Take of white vitriol ſixteen grains, pure water half a pint; mix them.
6. Take of white vitriol twenty grains, pure water half a pint; mix them.

N. B. More of the ſalts, or more water may be added, if it is found neceſſary to make either of them ſtronger or weaker.

I have often known a ſmart diſcharge attended with conſiderable pain in making water, carried off by this plan in the ſpace of twelve hours. The injection muſt nevertheleſs be continued for ſome days after the running has diſappeared, although there will be no neceſſity for throwing it in ſo often: the manner of living muſt alſo be regular, according to the directions given above, otherwiſe there can be no chance of a ſpeedy cure. [illegible]e firſt favourable ſign will be the mucus becom[illegible]ore thick and ropy. A ſwelled teſticle, or any untoward ſymptom, has never occurred in my hands from this method; nor did I ever ſee it fail in producing a cure, if duly perſiſted in under the limitations preſcribed. Gentlemen who are willing to adhere rigidly to the regimen and method laid down, will ſoon be convinced that there is no quackery in the propoſal; the proceſs is ſimple and intelligible, and the whole apparatus is portable. But at the ſame time it ought to be remembered, that nothing is proof againſt intemperance and indiſcretion.

This treatment will alſo apply to the more advanced ſtages of Gonorrhœa; but it is to the recent infection alone, and the early ſymptoms, that

I would wiſh you to confine yourſelves *. I will now direct you how to treat incipient

CHANCRES.

THE Chancre is a Venereal Ulcer; it ſometimes begins like a pimple with a white top; which breaks and ſpreads. At other times it appears at firſt merely an excoriation [illegible] ...ered. [illegible] that the

* A friend of mine, a wealthy merchant in L[illegible]th, after ſpending the evening at a tavern in the weſt end of the town, with ſome companions, and having drank heartily, was imprudent enough to have connection with a woman of the town, by whom he was infected with gonorrhœa. He was a married man, and injured his wife before he was aware of his complaint.—In order to conceal the buſineſs, he avoided making it known to the family apothecary, but conſulted one of thoſe ſpecious practitioners, with which the metropolis abounds. He took much medicine, and gave large fees to his doctor, without being at all benefited, for ſix weeks, when he became low ſpirited and melancholy. At this time he happened to ſee in the newſpaper my appointment to Haſlar Hoſpital. He immediately ſet out to conſult me. His looks and appearance alarmed me much, and I ſuſpected that his fortune, by ſome miſchance, was ruined. He ſhortly told me his tale, as I have related it, and I comforted him with the hopes of a ſpeedy cure. He uſed the injections as I have deſcribed to you; the diſeaſe diſappeared on the ſecond day; I ordered him to continue it a week or ten days longer; and he carried with him

ſkin was fretted, which ſoon gets deeper and wider, and never looks equal or clean on its ſurface. They occur moſt frequently on the inſide of the prepuce, particularly where it joins the glans; but occaſionally alſo on the glans itſelf, and ſome ſmarting pain generally leads to the diſcovery. This ſymptom always preceds the Bubo and Confirmed Pox; at leaſt I have never known either without it; although ſome authors tell us of the poiſon get- [illegible] oit without previous ulceration. [illegible] are ſo ſmall and ſo indolent, [illegible] o pain; and I have often been conſulted [illegible] Bubo, without the patient having obſerved any ſore, till the parts were examined by myſelf. I have alſo known a ſmall Ulcer heal up in a week, without giving any uneaſineſs, or having been treated as ſuch; and the patient was led to think that a beginning Bubo was the firſt ſymptom of the diſeaſe. On the whole, the reſult of my own experience is, that neither Bubo, or Lues, can be produced without preceding ul-

---

the ſame for his wife; and from that time their domeſtic happineſs was reſtored. The gentleman told me ſince, that he had fixed his mind on either a piſtol or poiſon, before he applied to me, as his only relief from trouble unſupportable. I do not mention this as an inſtance of a quick cure, becauſe ſuch are daily performed by others; but it ſhows to what chicanery the peace of a family may be occaſionally ſacrificed; and it ought to be a beacon for others.

ceration in the genitals, or other parts that have been in contact with the venereal virus.

The *Chancre* is therefore a local ſymptom; and if healed up in due time, will not affect the conſtitution. The venereal matter is ſecreted by theſe ſores, it is taken up by a certain kind of veſſels, which from their office are called abſorbents, and by them it is carried to the glands of the groin, where it produces Buboes; or into the body, where it produces the [illegible] ſymptoms which conſti[illegible] Now, you ſee from this [illegible] ſafety of the conſtitution depends [illegible] early treatment of a Chancre; when this is neglected, the horrors are uncalculable that muſt follow: I have ſeen eight or ten people within the laſt month, who are ſuffering pains and mutilations, not to be deſcribed, from having fallen into bad hands, and permitted the Chancres to ſpread. We cannot ſay to a certainty how long a venereal ulcer on the glans or prepuce, may remain open without endangering the abſorption of the poiſon; but I would not truſt it beyond twenty-four hours, although we have ſeen them open for months, and nothing bad follow. We can, however, pronounce it as a fact, that by watching the moſt early ſign, after a ſuſpicious connection, that the danger may be prevented effectually. The parts are to be kept clean, by ablution, as directed

above:

above: if any pimples are obſerved, they are to be broke immediately, and wiped dry; their whole ſurface is then to be rubbed with vitriol of copper, or blue vitriol, as it is called, till the ſpot becomes blue like the vitriol: if there are any excoriations, let them alſo be rubbed over, and apply a little ſurgeon's lint, very thinly, over the whole. The lint may be renewed after the ablution, morning and evening, and the blue ſpots will fall off ſpontaneouſly in ſloughs, and leave a [illegible] the ureth[illegible]eath, which needs no ap-[illegible], by the [illegible] as thin as it can be laid [illegible] the glans, or movin[illegible]e attention to cleanlineſs. If, matter flowin[illegible]ſurface of the ſore ſhould loſe its [illegible]earance, and not cloſe quickly after the [illegible]n of the ſlough, the vitriol may be renewed; but this will ſeldom be needed. There is ſometimes a neceſſity of touching eight or ten little ſores in this manner; a trifling inflammation follows, but never ſuch as to give alarm. It will therefore be proper to follow the regimen directed in Gonorrhœa, as it will accelerate the cure.

It has long been the cuſtom of deſtroying Chancres by cauſtic, as you will ſee in medical books; but the word itſelf, to perſons not converſant with the ſubject, implies a painful operation. I have tried every kind, and I am now ſatisfied that the blue vitriol is the beſt. It is the

the nature of a venereal ſore to be obſtinate; the ſurface never looks clean, and it never ſhows granulations, or little ſprouts of new fleſh, which form the character of ulcers diſpoſed to cloſe and heal: we therefore employ a cauſtic, which deſtroys their ſurface altogether to a certain depth; this is gradually ſeparated from the ſound fleſh below, and a new ſore is formed, that has nothing venereal in its nature, and which heals in thirty-ſix hours, if not large. If, therefore, [illegible] fully watch the firſt appe[illegible] have directed, you will certa[illegible] ſtitution; the ſurface of the Ch[illegible] it is likewiſe ſuperficial.

If the Chancre is of ſome days ſtandin[illegible] not anſwer for the ſafety of the conſtitutio[illegible] even in that caſe, I would recommend the ſame treatment. It is always neceſſary to check their ſpreading, which is ſometimes inconceivably rapid. Some authors, of great note, ſay, that in this ſituation, the cauſtic haſtens the abſorption; but our experience does by no means juſtify this concluſion: even if it were ſo, it could be no argument againſt the ſpeedy cure; for while it remains open, it muſt generate venereal matter, which is every moment in danger of being carried into the blood. I would therefore adviſe the application of the blue vitriol to every Chancre, and

conſult

consult with some physician or surgeon, on the propriety of using mercury for the security of the constitution.

A solution of blue vitriol, is often useful in the case of sores, between the prepuce and glans, when the skin, from inflammation or stricture, cannot be drawn back. Two grains will be strong enough for an ounce of water; it may be thrown between the skin and glans with a syringe, morn[illegible]g an[illegible]vening, and care must be taken it does [illegible]e urethra. These sores are known [illegible]t, by the pain occasioned by squeezing the glans, or moving the prepuce, and also, by the matter flowing from between these parts.

CASE

OF

AMPUTATION AT THE SHOULDER,

In a wounded French Officer,

Performed at Sea by Mr. Bur[illegible] *Surgeon* [illegible] *Ship* N[illegible].

April 26th. LAST night, Jean Moerieton, a French officer, apparently a healthy vigorous man, about twenty-four years of age, was brought on board here, having received a wound with a musquet ball in the right shoulder. Upon examination, I found the ball had entered at the deltoid muscle, about two inches above its insertion, and passed out at the superior part of the scapula. I dilated the anterior wound, and readily discovered the neck of the os humeri to be fractured, and much splintered. I also was enabled to feel, with the first finger

finger of my right hand, introduced at the wound, that its head was ſhattered into two or more pieces; a fracture of the ſcapula, where the ball paſſed out, was very evident; the clavicle was thrown ſo much upwards, as totally to prevent my being able to diſtinguiſh the firſt rib above it. Having aſcertained the nature of the wound, I conſidered the operation as indiſpenſable, but at the ſame time reſolved to defer it till the firſt inflammation ſhould ſubſide, and then perform it; he[illegible] nothing more was done the firſt night, [illegible] the wounds, apply light dreſſings, [illegible] oper bandage. An anodyne was given him, which procured a tolerable night. On inſpection this morning, the anterior wound was found to have bled conſiderably; the dreſſings were removed, but no artery could be diſcovered, to be ſecured. The wound was now dreſſed again as laſt night, and as there was a great deal of tenſion about the parts, a cataplaſm was applied.—Repet. hauſt. anodyn. h. ſ.

May 1ſt. Has had tolerable reſt theſe four nights paſt, with the uſe of anodynes; p. little quickened; b. bound; eats ſago for dinner, with a little wine in it.—Bib. aq. hord. Wounds are dreſſed daily; have a very irregular lacerated appearance, and diſcharge copiouſly a highly fœtid

fœtid pus, of pretty good conſiſtence.—Cont. cataplaſm.

May 3d. As the inflammation was nearly, if not entirely gone, and a very copious diſcharge of pus continued, by which the patient was much debilitated, at the ſame time the weather ſo moderate, that the ſhip could be kept pretty ſteady, I determined to perform the operation to-day. When he was placed upon the table, which was in the gun-room, I endeavoured to make compreſſion on the artery as it paſſes over the firſt rib but without ſucceſs; for not only th[illegible] being thrown upwards, but alſo ſome [illegible] tenſion, prevented its being effected, except very partially. I now attempted to make the compreſſion in the axilla, but the head of the humerus being ſo much ſhattered, yielded to the leaſt preſſure; finding both fail, I felt myſelf very unpleaſantly ſituated; but without the operation's being performed, it was evident that death was the certain conſequence to the patient; therefore reſolved to give him the chance.

Having every thing prepared, I appointed a French ſurgeon (who was ſurgeon of the veſſel the patient was wounded in) to make what compreſſion he could upon the artery above the clavicle, which, as mentioned before, was only partial. Mr. Brown, ſurgeon's

ſurgeon's mate of the Niger, ſtood at hand, to give me the neceſſary inſtruments, apply ligatures, &c. The arm was now ſtretched out, and ſupported at nearly a right angle with the body, the ſhoulder projecting over the ſide of the table. A circular inciſion was now made through the ſkin and cellular ſubſtance, about the inſertion of the deltoid muſcle, into the humerus, before proceeding further, any divided blood-veſſels were ſecured. The teguments retracted about three quarters of an inch. At the edge of the retracted [illegible] on the inner and under parts of the [illegible] applied the knife, and divided the muſcles down to the bone, all round, except a portion in which the humeral artery was included: any large blood-veſſels that were divided by this inciſion were ſecured. In the undivided portion of muſcle, I diſtinctly felt the pulſation of the artery; upon which I placed the thumb of my left hand, and then finiſhed the diviſion of the muſcles down to the bone: upon the artery being divided, a prodigious flow of blood followed. (Had the French ſurgeon been of much ſervice, he now forſook me, and removed the little compreſſion he was [illegible]g.) I was very ſoon enabled to paſs a ligature round it, and ſecured it, fortunately without the loſs of ſo much blood as might have been expected,

expected, when we conſider the ſize of the veſſel, its vicinity to the heart, and almoſt a total want of compreſſion, for my thumb effected only a partial one; as it was ſecured with the needle, the nerve was inevitably included in the ligature. (During the whole of the operation, Mr. Brown gave me very great aſſiſtance, but particularly at this part of it.) I now ſecured every blood veſſel; for even the ſmalleſt bled freely, after the larger were ſecured. With a ſtrong round-edged ſcalpel, I made a perpendicular inciſion down to the bone, beginning at the lower part of the wou[nd]
I had dilated upwards the firſt night he ca[me on]
board) and terminating in the circular inciſion, about an inch and a half on the outſide of the humeral artery, the bleeding veſſels were immediately ſecured. Finding the deltoid muſcle was in a gangrenous ſtate, I made the upper flap about one third ſmaller than the lower, and proceeded to ſeparate the flaps from the os humeri; which being effected, the arm came away, not leaving half an inch of the humerus attached to its head. I now ſaw that the head of the humerus was ſhivered into various pieces of different [ſizes].
After cutting the capſular ligament all rou[nd, it]
was, with ſome difficulty, I removed the [largeſt]
piece; the others came away eaſily, accompani[ed]